RELATIONSHIPS BETWEEN HEALTH VALUE, HEALTH LOCUS OF CONTROL AND ADOLESCENT LIFESTYLE BEHAVIOURS: RELEVANCE FOR THE PSYCHIATRIC-MENTAL HEALTH NURSE

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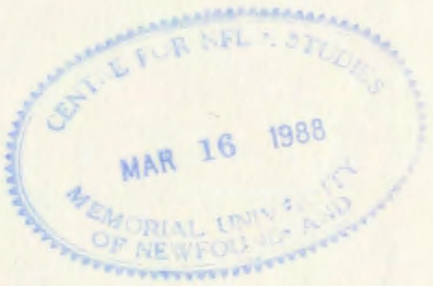
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BY

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ABSTRACT

Relationships Between Health Value, Health Locus Of Control and Adolescent Lifestyle Behaviours: Relevance for the Psychiatric-Mental Health Nurse

The primary purposes of this correlational descriptive study was to (a) examine the relationships between health value, health locus of control, psychological situation and the lifestyle behaviours of adolescents and (b) to explore their relevance to the practice of psychiatric-mental health nursing. A nonrandom sample of 336 adolescents completed the Health Information Survey. Findings of the investigation indicated that although students placed high value on health and demonstrated awareness of the impact of lifestyle practices on health, they engaged in detrimental lifestyle behaviours. Females, students with part time jobs and those with poor academic grades reported significantly more hazardous behaviour. Adolescents with an internal health locus of control and a positive psychological situation engaged in behaviours that were facilitative of healthy living. Students with strong beliefs in chance as reinforcement for health demonstrated the most risky lifestyle practices. Implications for mental health nursing were examined and recommendations for further nursing research were made.

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CHAPTER I

THE PROBLEM

Background of the Problem

Lifestyle has become a major health determinant with vast potential for improving or destroying both physical and mental well being (Haggerty, 1977; Plath & Belzer, 1985). Destructive lifestyle habits and their physical consequences, demonstrated by Canadian mortality and morbidity figures, illustrate the impact of this phenomenon. Between the ages of one and seventy years, for example, a less than adequate lifestyle and the environment are the principle underlying factors in each of the five major causes of death (Lalonde, 1974). In addition, lifestyle behaviours heavily influence causes of the most common hospital admission - diseases of the cardiovascular system (Lalonde, 1974).

The impact of lifestyle on emotional health is, unquestionably, harder to measure. Nonetheless, social conditions, substance abuse and general health practices such as inadequate sleep and nutrition have long been identified as contributors to the breakdown of mental health (Kolb, 1977, pp. 161-193). This, coupled with increasing acceptance of the interrelationship between mind, body and spirit make lifestyle a critical dimension for assessment and intervention by the mental health professional (Pelletier, 1979, p. 8).

Adolescence, in particular, is a vulnerable time for health and lifestyle as it is the lifestage in which significant aspects of health behaviour are set for much, if not all, of adulthood (Perry & Murray, 1982). It is a period of profound change - emotions intensify, intellectual capabilities increase and physical changes occur (Heisler & Friedman, 1980; Nelms, 1981). Adolescence represents the time of experimentation and initiation into adult behaviour patterns, patterns which often have premature disability and death as consequence (Health Promotion Studies Unit [HPSU], 1983). As substance use, sedentary lifestyles and unhealthful eating patterns become increasingly commonplace, wise choices about lifestyle are more difficult for the adolescent.

Wise choices about health-promoting lifestyles take on extra importance in light of the population trends. The number of adolescents in Canada is declining because the peak wave of baby boomers passed through adolescence by the end of the 1970's. This decrease in population has serious implications for health (HPSU, 1983). For example, if the proportion of adolescent population engaging in negative health behaviour remained the same, its absolute size would still decline due to the diminishing population base. Conversely, a reduction in the prevalence rate for negative health behaviour would result in a more accelerated decline

in the absolute number of adolescents at increased risk (HPSU, 1983). Given these factors - the importance of lifestyle to physical and emotional health, the significance of lifestyle in conjunction with adolescence and the implications of the declining adolescent population, interventions which promote healthy behaviour patterns among youth are mandatory. Nursing, with its current thrust toward health promotion and prevention of illness, is the discipline most suited to assume leadership in the provision of these services to the public (Pender, 1982, p. viii).

Evidence is mounting which suggests that adolescents have difficulty applying principles of health promotion and disease prevention to their daily lives. Lifestyle behaviors have been singled out as a major health concern of adolescents (Carey & Rogers, 1973; Kovar, 1979; Medina, Wallace, Ralph & Goldstein, 1982; Tamir, Wolff & Epstein, 1982; Taylor & McKillip, 1980). At a very basic level, even the health knowledge of Canadian youth appears inadequate and insufficient. King, Robertson, Warren, Fuller and Stroud (1983) surveyed nearly 10,000 fifteen year old Canadian students to assess their level of health knowledge. Health experts judged the performance of these grade 10 students to be inadequate on 60 percent of the questions, that is, less than 55 percent of the respondents obtained the correct answer to the questions. The major problem

areas identified for the adolescents were alcohol, communicable diseases, drugs (including tobacco), human sexuality and fitness. The majority of the 15 year olds did not know that alcohol affects a driver's ability to make decisions, that lack of exercise is a major cause of overweight in young people, the effects of smoking on pregnancy, the influence of hormones on the emotions of adolescents and the effects on the body of marijuana, cocaine and inhalents.

To help adolescents adopt healthy patterns of daily living, nurses must be aware of factors which impact lifestyle choices. Adequate knowledge may be the first step in responsible decision making but other conditions also influence how choices are made and behaviour patterns established. Three of these, the value placed on health, the individual's psychological situation and the health locus of control of the individual, have been highlighted as impacting on health related behaviour (Phares, 1976, p. 16; Wallston & Wallston, 1978). An understanding of these factors in relation to the developmental stage of adolescence should assist the nurse in more effective and meaningful lifestyle counselling, which is an important nursing intervention for every effective mental health nurse (Standards of Mental Health Nursing Practice, ANA, 1982). This study will endeavor to examine health value, psychological situation and

health locus of control in relation to adolescents and the lifestyle choices they are making.

Problem Statement

Through clinical experience as a psychiatric-mental health nurse, the investigator has seen the devastating effects of poor lifestyle habits on the mentally ill. Knowing first hand the difficulties involved in changing established behaviour patterns, the need to be more effective in counselling for lifestyle change was apparent. Due to increasing emphasis on the preventive role of mental health nursing this study explored some of the variables believed responsible for influencing health behaviour during the most critical lifestage - adolescence. Specifically, the problem under study was: What are the relationships between health value, health locus of control and the lifestyle behaviours demonstrated by adolescents and what relevance do they have for psychiatric-mental health nursing.

Review of the Literature

A literature review was undertaken to explore the major variables of the study and to examine the role of the mental health nurse in relation to lifestyle counselling. Due to the limited literature specific to adolescents and health behaviour decisions, literature of a broader scope was reviewed. It will be presented under the following headings: (a) locus of control, (b) adolescents and locus of control,

(c) values and health value, (d) adolescent health concerns and behaviours and (e) the role of the mental-health nurse.

Locus of Control

Research demonstrates that differences in locus orientations do lead to characteristically different behaviours among a variety of samples and in many different kinds of life experiences (Arakelian, 1980). Evidence is accumulating that identifies locus of control as a relevant way to predict health behaviour.

As early as 1962, Seeman and Evans found that hospitalized patients with tuberculosis, who scored as internal on an I-E measure with intelligence controlled, knew more about their illness than their matched external counterparts (Strickland, 1978). Lowery and Ducette (1976) investigated 90 people with diabetes to determine the relationship between locus of control and the subjects' responses to the disease. Study results provided support for the prediction that persons holding an internal locus of control orientation were more active information seekers than those with external locus of control orientations. Wallston, Wallston, Kaplan and Maides (1976) also found that persons who scored as internal on an I-E scale were more likely to collect information about health maintenance while Ducette and Wolk (1973) found that those with internal orientations were better able to use health information for personal problem-solving.

Even among children this trend has been supported. Lamontagne (1984) examined the relationship between children's locus of control beliefs and their pre-operative coping behaviour. Fifty-one children between the ages of eight and twelve scheduled for minor elective surgery were the subjects of this investigation. Children who were internal on the Nowicki-Strickland (1973) Locus of Control scale knew more about their medical problem and the nature of their surgery than children who were external.

Weight loss is one variable that has been studied extensively in relation to locus of control. Balch and Ross (1975) tested 34 females and reported internal beliefs to be predictive of success in and completion of an overweight treatment program. Kincey (1981) found that among a sample of 131 obese females who attended a behavioural weight loss program, locus of control significantly predicted outcome. Internals achieved greater mean weight loss. Chevez and Michaels (1980) reported the same result in their study of 43 subjects attending a behavioural treatment program for obesity. Those with internal locus of control lost significantly more weight than external subjects. Cohen and Alpert (1978) and Wallston et al. (1976) also have reported research that supports this variable relationship. Other investigators, however, have not related locus of control to weight loss (Gierszewski, 1983; Manno and Marston, 1972; Tobias and McDonald, 1977).

Following the growing concern in the 1960's about the connection between cancer and smoking numerous studies were conducted which demonstrated that individuals who were not smokers or who had quit smoking were more internal than those who smoked. Shipley (1981) found in his study of 44 subjects involved in a smoking cessation program that high scorers on the internal scale were nearly three times more likely to have maintained their non-smoking status after three months. An investigation by Kaplan and Cowles (1978) of 35 participants in a smoking cessation program revealed that individuals who held internally-oriented health locus of control beliefs were more successful in achieving and maintaining changes in their smoking behaviour than their external counterparts. Steffy, Merchenbaum and Best (1970) and James, Woodruff and Warner (1965) concur with this stance and report greater success with giving up smoking among people who hold an internal locus of control orientation.

In maintaining health, Sonstroem and Walker (1973) found internal college males to hold more positive attitudes towards physical exercise than externals and these internals were also more likely to participate in voluntary exercise. Thomas and Hooper (1983) found in their study of 40 healthy elderly subjects that all were characterized by internal locus of control, both in general and specific to health. This sample of elderly also revealed satisfying social bonds

and the authors postulated that there was a causal relationship betwen adequate social bonds, internal locus of control orientation and good health.

With regard to emotional health, there is indicated a positive relationship between an internal orientation and freedom from mental pathology (Hersch & Scribe, 1967). Butler and Burr (1980) in their study of 914 male US Navy enlisted personnel examined the relationships between locus of control and mental health status, job satisfaction and family strain. The correlations between the variables were found to be significant and in the expected direction, that is, higher internal scores were positively related to perceived job satisfaction and negatively related to unfavorable mental health status. Phillips (1980) examined the relationships between purpose in life, depression and locus of control among a sample of 134 college students. He found that purpose in life scores were highest for the non-depressed internal group and lowest for the depressed external group.

A number of studies have also found characteristic differences among internally and externally oriented individuals in response to threat or illness. Bollin and Hart (1982) examined the relationship between the dietary adherence of 30 subjects who had been dialysed for at least ten months and health locus of control. Compliance was

measured by adherence to the diet for chronic hemodialysis patients which restricts fluids, potassium, sodium and protein. As a group, those who were internally controlled were significantly more compliant than those who were not. In all areas of compliance the mean scores of the external subjects were lower. However, over two-thirds of the sample was externally controlled - understandable considering that life for a patient on hemodialysis is totally dependent upon outside forces such as machines and health professionals. Weaver (1972) conducted a study involving 31 home dialysis patients and found while there was no significant relationship between compliance and locus of control, a definite trend of association was noted (Bollin & Hart, 1982).

Some recent research, however, has cast some doubt on the accuracy of locus of control as a predictor variable in regards to health related behaviour. In an investigation by McCuster and Morrow (1979) of 404 teachers and administrators no relationship could be identified between health locus of control orientation and preventive health behaviour. The study was conducted in the context of an evaluation of a cancer detection program and employed a pre- and post-test design. The preventive behaviours investigated included use of specific screening tests, breast self-examination practice and smoking. Hallal (1982) in her study of 207 women found

that practicing breast self-examination (BSE) was not significantly correlated with a higher score on the "Internal" subscale of the Multidimensional Health Locus of Control (MHLC) scale. Interestingly, practicing BSE was negatively correlated with obtaining a higher score on the "Powerful Other" subscale of the MHLC scales.

Pill and Scott (1981) could also find no significant relationship between those subjects who showed awareness that day to day behaviour influenced health status and internal locus of control. Thirty-four married women with children were assessed as to their awareness of the relationship between decisions about such activities as leisure, work, diet and social relationships and their health. For those who were more aware and convinced of the relevance of lifestyle for health, there was a tendency toward internal health locus of control orientations but this did not reach significance. One clear relationship that was identified, however, was between salience of lifestyle and rejection of the idea that powerful others control one's health.

An investigation by Brown, Muhlenkamp, Fox and Osborn (1983) which was conducted in part to challenge the results of the study by McCluster and Morrow (1979) examined the relationship between health locus of control and the combined health promotion activities of safety, nutrition, prevention, substance use, relaxation and exercise. Sixty-three subjects

participated in the study and the results revealed that the predictive efficacy of the MHLC was reaffirmed for broadly focused health promotion activities but not supported for health information-seeking activities. A positive correlation was identified between IHLC and health promotion activity and a negative correlation between CHLC and health promotion activity. In regard to the lack of relationship between IHLC and health-related information-seeking behaviour, the investigators speculate that individuals who are more internal may rely more on internal forces and seek less "outside" information than those who are more external in orientation.

Locus of control and adolescents. Little has been written concerning the locus of control of adolescents but what is available tends to concur with the broader scope of research reviewed. Schilling and Carman (1978) surveyed 196 adolescents and found that those with an external locus of control orientation tended to use drinking as a way to escape from problems and inadequacies of a psychological and social nature. In addition, those adolescents having an external locus of control experienced more complications as a result of their drinking, such as trouble with authorities and alcohol related car accidents. Adolescents who drank but who held an internal locus of control did not report the same degree of difficulty with their drinking behaviour. Carmen

(1974) also found that an external locus of control tended to be associated with students who were drinking for problematic reasons, such as feeling "mad" or feeling "under pressure."

Several studies by Williams (cited in Strickland, 1978) have demonstrated a relationship between locus of control and the health related behaviour of adolescents. Ninth grade smokers were found to have an external orientation as compared to their non-smoking classmates. Internally oriented high school students reported greater use of seat belts when riding in automobiles than externals and these students also reported themselves to be significantly more likely to engage in preventive dental care.

Values and Health Value

One factor identified as impacting on behaviour is one's value system (Rokeach, 1968, p. 8). Attitudes, beliefs and values are all part of an interconnected system that has self-concept at the core. Research has demonstrated that the importance an individual places on a value is reflected in behaviour.

Rokeach (1971) provided white university students with feedback about their own and others' political values and attitudes. This feedback was deliberately designed to make many of them aware of certain contradictions chronically existing within their own value-attitude system. For example, about 25 percent of the experimental subjects

discovered they supported civil rights for black Americans yet did not particularly care about the value equality; another 15 percent discovered that they placed a high priority on equality yet endorsed certain racist positions and another 30 percent discovered that, even though they regarded themselves as democratic, they neither cared for civil rights for black Americans nor the value of equality. Subjects who became aware through feedback of such contradictions within their belief system subsequently exhibited significant increases in the importance they attached to the political values of equality and freedom, significantly changed related attitudes concerning civil rights for black Americans and behaved significantly more often in an egalitarian manner. For instance, they responded significantly more frequently than did a control group to direct solicitation to join the National Association for the Advancement of Colored People and their enrollment increased in ethnic core courses. These cognitive and behavioural changes were observed for nearly two years after the single experimental treatment.

In a study conducted by Conway (1979) self-confrontation techniques were used as an approach to smoking cessation. Seven experimental subjects viewed two charts showing the instrumental value rankings of smokers and the rankings for quitters. The values of self-discipline and broadmindedness

were outlined in red as previous research had shown that smokers and quitters differed significantly in their ranking of these two values. Smokers ranked broadmindedness third and self-discipline eighth whereas quitters ranked broadmindedness eighth and self-discipline first. The differences in rankings were discussed with clients and they were asked to indicate their extent of admiration for those who had quit smoking. Then they compared their own value rankings with those of smokers and quitters. Following completion of the smoking clinic values were again surveyed and the rank order of self-discipline in the experimental group had increased significantly while no significant changes had occurred in the ranking of other values. Increase in rankings of self-discipline were closely correlated with amount of dissatisfaction expressed by clients with their own preclinic value rankings. In reviewing the behavioural effects at the conclusion of the clinic, the experimental group had reduced its smoking rate to five percent of its preclinic rate whereas the control group still reported 28 percent of its preclinic rate. This difference was apparent for at least two months following completion of the experiment.

DeSoue's study (cited in Rokeach, 1979) replicated the findings of Conway (1979) using 33 subjects. During a three week anti-smoking clinic he compared the effects of the value

confrontation technique with the results obtained for three comparison groups. The results were essentially as expected. Smoking behaviour declined markedly following the confrontation and was greater for the experimental group than for the comparison group.

Health as a value has been used as a variable in a number of studies that attempt to predict certain types of health related behaviours. At best, the results have been mixed. Bollin and Hart (1982) found that in subjects undergoing hemodialysis the only compliance area score that had a correlation with health valuing that reached a significance level of at least .1 was dietary recall. No comparisons could be made regarding high and low health valuing groups as all but one subject fell into the high group. Brown, Muhlenkamp, Fox and Osborn (1983) also found when examining the relationship among health beliefs, health values, and health promotion activity that health value was not found to be significantly related to any of the other variables. They speculated that this was due to the limited range of health value scores - over 50 percent of the 63 participants assigned health as one of their top two values. Investigations by Muhlenkamp and Nelson (1981) and Rosenblum, Stone and Skipper (1981) could also find no significant relationship between health value and weight reduction behaviour and health value and immunization of preschoolers respectively.

Research has been conducted, however, which demonstrates clearly the relationship between health value and health related behaviour. Kaplan and Cowles (1978) evaluated the effectiveness of several continued-contact formats for the maintenance of smoking reduction. Median splits on the health locus of control scale and the health value measure (a shortened version of Rokeach's Value Survey, 1973, with "Health: Physical and Mental Well-being" added as a value) were used to divide the 31 participants into internal or external health locus of control groups and high or low health value groups. High health value participants maintained lowered smoking rates over time, while low health value participants displayed a tendency to return to baseline smoking. Although the three way interaction among health locus of control, health value and time was not significant, it was clearly indicated at the follow-up periods of eight weeks and four months that internal, high health value participants smoked significantly fewer cigarettes than the other three groups combined.

Saltzer (1978) examined the relative importance of personal attitudes toward losing weight and the social pressures for weight loss in determining intentions to lose weight among 116 subjects. She integrated two major theoretical postulations about the relationship between beliefs and behaviour: Rotter's social learning theory and

Fishbein's behaviour intentions theory (summarized in Saltzer, 1978). Fishbein's theory states that behavioural intentions can be predicted from two major components: (1) normative beliefs which are the influence of the social environment on behaviour and (2) attitudes toward the behaviour which is the individual's perceptions of the consequences of performing the behaviour. It was predicted that for internal locus of control individuals who place a high value on health and/or a high value on physical appearance, the personal attitude toward the behaviour component would be the stronger of the two predictors of behavioural intentions. For individuals who also place a high value on health and/or physical appearance but are locus of control externals, it was predicted that the social subjective norm component would have the stronger influence upon behaviour intentions. Using the Weight Locus of Control Scale as the basis for determining internality and externality, the predicted pattern of greater importance of social norms for externals and greater importance of personal attitudes for internals was observed for subjects who ranked health, physical appearance or both values highly. When subjects who specifically had low values on health, physical appearance or both were differentiated as internal or external, the predicted pattern did not occur.

Among children the value placed on health has been shown to impact on perceived health status. One hundred thirty-five children between the ages of eight and twelve years were the subjects of an investigation by Parcel, Nader and Rogers (1980). Results showed that when children with an internal health locus of control are compared with children holding an external health locus of control the health status they report depends upon whether the child places a low or high value on health. For those who place a low value on health, their locus of control appeared to make no difference in how they perceived health status. For those who placed high value on health, the internals report better health status, that is, they are less likely to report frequent illness or susceptibility to illness.

Adolescent Health Concerns and Behaviours

Adolescence has been described as a key point in the life cycle for formulating a personal philosophy about the value and meaning of one's health and wellness (Bruhn & Cordova, 1978). It is a critical stage in the development of health behaviour as ego identity and lifestyle choices can be influenced and directed by social expectations (Bruhn & Cordova, 1978). Research indicates that adolescents are interested in health and health care but engage in behaviours that are detrimental to health (Brunswick, 1969; Health Promotion Studies Unit [HPSU], 1983). In addition,

adolescent health problems are often unidentified, neglected and unresolved within the health care system which makes this group particularly vulnerable to unhealthy behaviour patterns (Benedict, Lundeen & Morr, 1981; Daniel, 1977, p. 6).

In a survey conducted by Parcel, Nader and Meyers (1977) over 3200 adolescents were questioned about their health concerns, problems and health care utilization. The most consistent finding reported by adolescents indicated the lack of information available regarding birth control, drugs, health, health services and/or sex. Among the health problems identified by youths in this sample, 'acne' and 'how far to go with sex' were noted foremost with feelings of 'depression/sadness' and overweight ranking second and third respectively. Brunswick (1969) surveyed 122 adolescents between the ages of twelve and seventeen to find what they thought were the major health problems in their age group. Forty-four percent said cigarette smoking, 34 percent reported drugs, 32 percent reported alcohol and 18 percent endorsed air pollution.

In a study (Benedict et al., 1981) of 125 seventh and tenth graders designed to determine health problems and perceived health needs of adolescents, 78 percent of the sample indicated that psychological and social difficulties were a major concern. Sixty-one percent felt that problems in family health were a top consideration while over 40 percent

of the youths experienced persistent personal health problems within themselves such as diabetes, allergies and general health concerns such as weight problems, absence from school for illness or need for regular medication. Seventh graders identified the family, particularly mother, as the most frequently used source of health information whereas tenth graders were more likely to identify themselves as the source most frequently used for health information. Sex differences were also apparent in this study in regards to health behaviour. Girls significantly reported increased numbers of health concerns and utilized the medical care system to a greater extent than boys. Resnick, Blum and Hedin (1980), however, found in their study of 800 high school students that in general neither males nor females overutilized health services and, if anything, inappropriately postponed seeking needed medical care because of anxiety, and their frequent sense of discomfort in conventional medical settings.

In regard to behaviour, evidence is accumulating which suggests that adolescents engage in lifestyle related behaviour that place them at increased risk in both the short and long term (HPSU, 1983). Many of the behaviour patterns that contribute to the etiology of chronic disease are established during adolescence. For example, a study developed by Smart and Goodstadt (1979) questioned over 9000 Canadian youths regarding drug and alcohol use (Addiction

Research Foundation, 1979). This longitudinal study showed that the use of tobacco, cannabis, non-prescription stimulants and LSD increased from 1977 but that all other types of drug use remained essentially the same. Twenty percent of the students claimed to use alcohol once per week while 50 percent had consumed wine with their families in the last year. Cannabis users accounted for 32 percent of the total number of subjects with half of those youths using it ten or more times in the past year. Generally, drug use was more prevalent among males than females and although 20 percent of the sample smoked three or more cigarettes per day, more females than males were users of tobacco.

Shank, Young and Thomas (1981) studied the health care practices of 308 young college women in eight different areas, including: (1) smoking, (2) alcohol consumption, (3) drug use, (4) gynecologic health practices, (5) nutrition, (6) exercise, (7) coping strategies and (8) physical illness. The major negative health factors that were identified related to problems with nutrition, gynecologic health practices and coping strategies. The authors suggest that the women appear to be a high risk group for long term health problems unless changes are made in their lifestyle behaviours.

Weston (1979) examined the health and lifestyle behaviours of 738 Canadian youths between the ages of 15 and

19 years and found that they routinely engage in behaviour that is not conducive to good health. For example, 91 percent indicated that they had been under the influence of alcohol on more than two occasions; 52 percent of the sample are at present or were, in the past, regular cigarette smokers; 49 percent had at some time used marijuana, with 27 percent of that figure indulging within the last 30 days and 77 percent of the adolescents questioned did nothing special to ensure a nutritious diet. The findings clearly established that important health-related practices of Canadian teenagers are in serious need of revamping to ensure a productive adulthood.

The Role of the Psychiatric-Mental Health Nurse

One recurring theme in the recent literature pertaining to mental health nursing was in relation to the role expansion of the mental health nurse (Fagin, 1981; Minarik, 1984; Pepleau, 1982). Psychiatric nursing was described as being in a time of transition with new and emerging roles developing for the nurse (Pearlmutter, 1985). No longer were the parameters of the speciality defined by care of the chronically mentally ill or crises intervention for those suffering from acute psychosis. During the 1980's mental health nursing has broadened to include interventions with medically ill clients, the isolated elderly, substance abusers, children and adolescents and has moved into

outpatient, long term care and home settings as well as private practice (Pearlmutter, 1985). To accommodate this shift in emphasis, there is a growing trend to provide psychiatric nurses with community preparation as the need for their services was well established outside the acute care setting (Interview with C. Holleran, 1984).

A change in the conceptual underpinnings of the way to provide emotional care was, in part, responsible for the role expansion of the psychiatric-mental health nurse. Emphasized in current mental health nursing literature is the holistic approach to provision of client care (Fife & Lemler, 1983; Miskiman, 1982; Schultz & Dark, 1982, p. 5; Talley, 1983). In fact, complete textbooks have now been published espousing the holistic approach to psychiatric-mental health nursing (Beck, Rawlins & Williams, 1984). Adherence to this approach requires that the nurse recognize physical, emotional and spiritual health as related and inseparable with the aim of integrating all aspects of nursing care (Schultz & Dark, 1982, p. 5). In addition, recognition of the relationship between lifestyle and health is considered essential in holistic nursing care (Beck et al, 1984, p. xi). Talley (1983), for instance, contends that during times of stress many non-psychotic symptoms such as anxiety, sadness, insomnia and anorexia subside when the client makes the necessary lifestyle changes. Nursing care which integrates

the physical, emotional and environmental health needs of the client is most successful in returning the client to optimal mental health (Talley, 1983). Randall (1981) concurs with this stance and supports acceptance of the role of the client's social and cultural background in both psychiatric and somatic illness. She cites research that supports the belief that mental fitness, lifestyle and general health cohese as interrelated concepts.

Canadian (1984) and American (1982) Standards of Psychiatric Nursing Practice reflect the growing awareness of the interdependence of the mind and body. Both documents make specific reference to (a) mental and physical health teaching and (b) assessment of and intervention in the client's personal and social living patterns as official professional functions. Considering that these are two (no. IV & V) of a total of 15 psychiatric-mental health nursing standards, the significance of lifestyle to the mental health nurse is firmly established.

Summary of Relevant Research

Psychiatric-mental health nursing has a professional commitment to improving the lifestyle behaviours of mankind (Beck et al., 1984, p. xi). With the profession's strong thrust toward prevention of emotional disorders, lifestyle change has become a key element in achieving that goal (Pender, 1982, pp. 207-232). Adolescents, because of their

notoriety for unhealthy lifestyle habits, have been identified as an at-risk group for health (HPSU, 1983; Weston, 1979). To influence adolescent lifestyle practices in a positive way would almost certainly affect future incidence of emotional problems.

To be effective in counselling for lifestyle change, mental health nurses must be cognizant of the factors that influence health and lifestyle decisions. Three factors that have been highlighted in this respect are: (a) the value placed on health, (b) the health locus of control orientation and (c) the psychological situation (Lewis, Morisky & Flynn, 1978; Rotter, 1975). A growing trend has been reported in the literature which correlates a high value placed on health, an internal health locus of control and a positive psychological situation with desirable health behaviour (Strickland, 1978; Wallston, Wallston & DeVellis, 1978).

Little has been written, however, which described the relationship between these variables and the lifestyle behaviours of adolescents. As adolescence is a crucial lifestage for the establishment of long term behaviour patterns (Perry & Murray, 1982), knowledge in this regard could have the positive consequence of fostering more health sustaining practices among youth (HPSU, 1983). More research, then, is warranted to study the relationship between health value, health locus of control, the

psychological situation and the health-related behaviours of adolescents to ensure more effective health education and counselling for youth.

Definition of Terms

The following terms will be used throughout the investigation:

Adolescent: A person who is between the ages of 15 and 19 years inclusive.

Health value: The personal value placed on reducing the threat of disease and/or enhancing wellness, which will be operationalized by responses to an adapted version of Rokeach's Value Survey (See Appendix A).

Health locus of control: A generalized expectancy in social learning theory that deals with three perceptions of health control (Wallston & Wallston, 1978).

1) Internal health locus of control (IHLC): A perception of health control in which the individual assumes personal and innate responsibility for health.

2) Chance health locus of control (CHLC): A perception of health control in which the individual believes that personal health is dependent upon the forces of luck, fate and chance.

3) Powerful others health locus of control (PHLC): A perception of health control in which the individual believes that personal health is dependent upon the influences of significant other people such as health professionals and family.

The three health perceptions are operationalized by the Multidimensional Health Locus of Control scale (See Appendix B).

Lifestyle: The unique pattern of one's daily life; the outcome of what one things, feels and does (Vierke, 1980).

Lifestyle behaviour: Health-related behaviour that is an inherent part of daily living, such as, fitness, nutrition, substance use, road and water safety and personal health. These behaviours will be operationalized by the Lifestyle Profile questionnaire (See Appendix C).

High school: An educational institution that serves the learning needs of adolescents in grades ten, eleven and twelve.

Classroom: The normal setting in an educational institution where teaching-learning is carried out.

Student: An adolescent attending high school.

Psychological Situation: The situation specific factors or situational variables that play a role in determining

the behaviour choices of individuals (Phares, 1976, p. 12). Psychological situation refers to the cues which are manifested in a particular situation and are attended to by an individual which affect locus of control expectancies and the value of health (Phares, 1976, p. 17). It has also been described as alternative sources of support for a particular behaviour in a given situation (Lewis et al., 1978). The concept of psychological situation is operationalized in this study through six health-related variables (See Appendix D).

Theoretical Framework

This study was guided by the Health Belief Model (HBM) of Hochbaum (1970) and Rosenstock (1966) which focuses specifically on the influence of cognitive, social and psychological variables on health behaviour. It relates psychological theories of decision-making (which attempt to explain action in a choice situation) to an individual's decision about alternative health behaviours (Davidhazar, 1983).

Rosenstock (1966) attributes the origins of the HBM to Lewin (1935) and describes several conditions necessary to the model. Whether or not an individual will undertake a recommended health action is dependent upon that individual's perceptions of: (1) level of personal susceptibility or vulnerability to a particular illness or condition, (2)

degree of severity of the consequences (organic and/or social) which might result from contracting the condition, (3) the health action's potential benefits and/or efficacy in preventing or reducing susceptibility or severity and (4) physical, financial, psychological and other barriers or costs related to the advocated behaviour. In addition the model also stipulates that a cue to action or stimulus (either internal or external) must occur to trigger the appropriate behaviour by making the individual consciously aware of his feelings about the health threat (Mikhail, 1981). This study focused primarily on the third condition - belief in the efficacy of one's actions.

Social Learning Theory

The concept of 'locus of control' derived from Rotter's (1954, p. 46) social learning theory, provided a framework in this study for analyzing Rosenstock's third condition, belief in the efficacy of one's actions. To fully understand the nature of 'locus of control', however, it must be described in relation to the other concepts that comprise the theory as it is through their interrelationships that locus of control is significant (Phares, 1976, p. 10). The framework is represented in Figure 1, page 31.

Social learning theory is a theory of how choices are made by individuals from the array of potential behaviours available to them (Phares, 1976, p. 13). To determine which

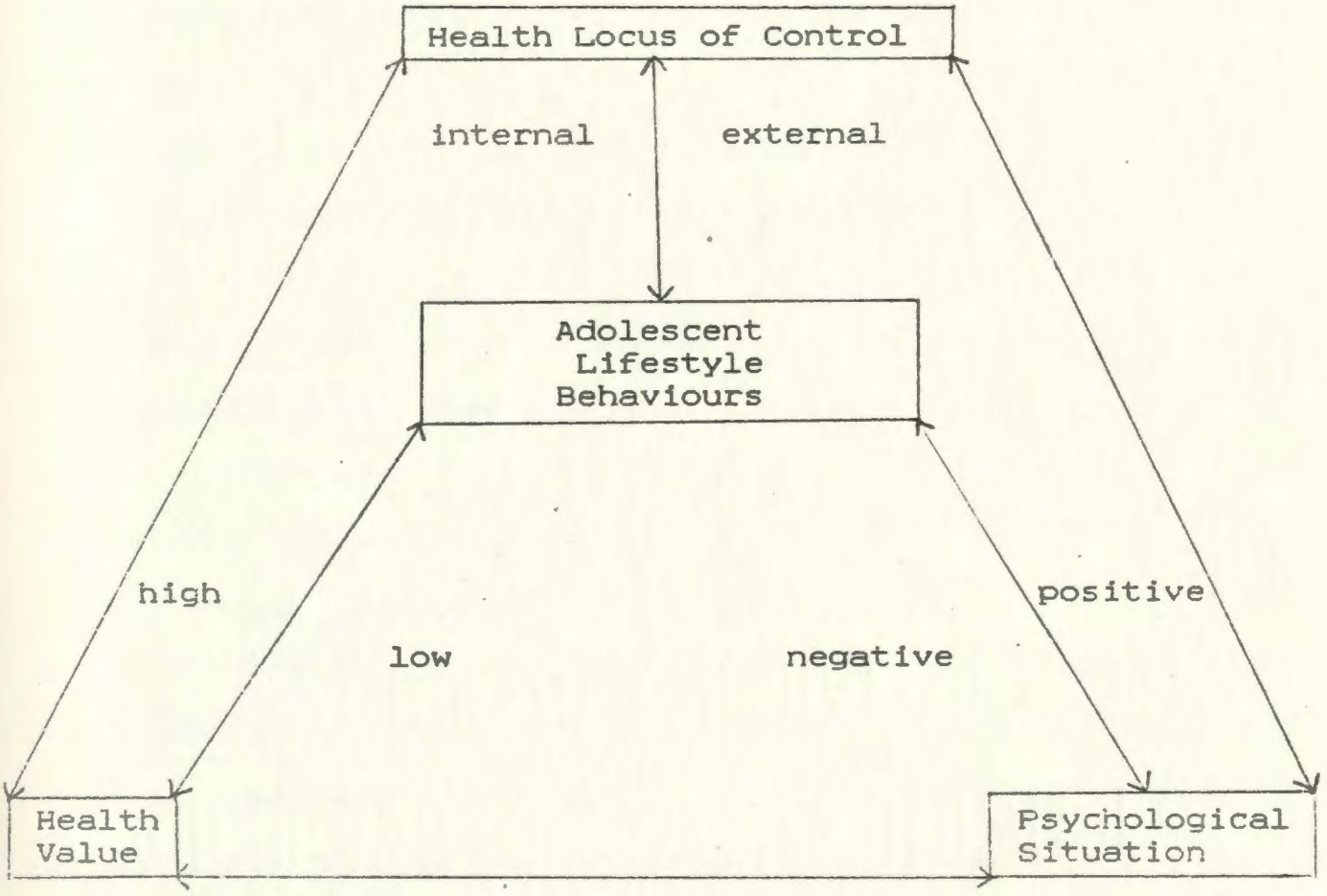

Figure 1. Conceptual model depicting the relationships between health locus of control, health value, psychological situation and the lifestyle behaviours of adolescents.

behaviour has the greatest potential for occurrence three conditions must be considered - reinforcement value, expectancy and the psychological situation. Reinforcement value refers to the degree of importance or valuation that an individual places on the outcome of behaviour. It is the value of the goal toward which the behaviour is directed (Phares, 1976, p. 15). Expectancy is the "probability held by the individual that a particular reinforcement will occur as a function of a specific behaviour on his part in a specific situation" (Rotter, 1954, p. 107). When an individual is in a unique situation generalized expectancies will dominate in influencing behaviour as opposed to specific expectancies based on prior experience in that situation. When an individual has had previous experience in a given circumstance generalized expectancies will prove of little significance while specific expectancies will be the major influencers. Psychological situation refers to both the specific and general effects on behaviour that a given situation will have by the manner in which that situation affects expectancies and reinforcement values (Phares, 1976, p. 17).

In social learning theory the relationship among the three variables, reinforcement value, expectancy and psychological situation - determines the potential for a particular behaviour to occur (Rotter, Chance & Phares, 1972, p. 14).

A behaviour potential is greater when expectancy and reinforcement value are both high, or when one is high and the other moderate, than when both are low. In other words, individuals have a choice in how they will behave and before deciding on a particular action they must consider both their valuation of the outcome (reinforcement value) and their estimation of the likelihood or probability of its occurring (expectancy) (Arakelien, 1980). The psychological situation, depending on the cues present in the situation, influences an individual's assessment of value and expectancy.

Locus of Control

Generalized expectancies, because they influence perceptions and meanings given to present situations, play an important role in determining behaviour. Situations are perceived alike and therefore handled alike because the individual sees them as presenting similar problems to be solved. As a generalized expectancy in social learning theory locus of control has a role to play in predicting behaviour.

Locus of control deals with individual interpretations of the causality of behavioural outcomes or reinforcements. People differ in the degree to which they attribute reinforcement to their own behaviours or qualities or, conversely, view such events as being independent of personal

phenomena (Arakelien, 1980). Individuals who believe that what happens to them is primarily due to their own actions or attributes are characterized as having internal locus of control orientation while those believing what happens to them is principally because of luck, fate or powerful others or is unpredictable because of the complexity of the situation are considered to have external locus of control (Arakelien, 1980).

Locus of control, then, is a relatively stable personality factor developed over time and acquired through a series of many social learning experiences (Arakelien, 1980). It is a personality dimension that can be quantified and used in conjunction with other social learning theory variables to predict human behaviour (Phares, 1976, p. 11). Although relatively stable, it is not static, however, and the potential always exists for changing a person's locus of control (Pender, 1982, p. 124). New experiences that alter previous patterns of success and failure may bring about changes in expectancies. Environmental factors including age changes, conditions that affect a person's certainty that control can be exerted, world or national events and a variety of therapeutic techniques are influential in modifying an individual's locus of control (Phares, 1976, p. 170.). This is an important consideration as it is through

manipulation of such factors that behaviour change may result.

Values

Human values can be conceptualized as consisting of a relatively small number of core ideas or cognitions present in every society about desirable end-states of existence and desirable modes of behaviour instrumental to their attainment that are capable of being organized to form different priorities (Rokeach, 1979, p. 49). Values can be thought of as socially shared conceptions of the desirable (Kluckhohn, 1959, cited in Rokeach, 1979) that serve as standards to guide individuals in all efforts to satisfy their needs and enhance their self-esteem (Williams, 1951, cited in Rokeach, 1979). They appear to be critical mediating variables in human actions or reactions to environmental stimuli that emerge over time as a result of development of personal experiences, interpersonal relations and social circumstances (Pender, 1982, p. 127). Since no two people have the same life experiences, no two personal value systems are the same.

Self-concept is the core of each personal value system (Pender, 1982, p. 128). Changes in any part of the system affect the self-concept, other values and subsequent behaviour (Conroy, 1979, pp. 199-209). Shifts in human values have two possible outcomes: (1) greater consistency of values or among values, self-concept and behaviour and (2)

increased value/value, value/self-concept or value/behaviour conflict (Rescher, 1969, pp. 111-115).

All behaviours express values in some way (Pender, 1982, p. 128). Values determine the behaviours that will be enacted in order to adjust to the environment or to achieve higher levels of health and self-actualization (Rokeach & Regan, 1980).

The process of valuing has been described by Raths, Harmin and Simon (1966, p. 21) as consisting of seven steps: (1) choosing values freely, (2) choosing from alternatives, (3) consideration of the consequences or outcomes of each alternative, (4) cherishing, being happy with the choice, (5) willingness to make values known to others, (6) doing something with the choice and (7) integrating values into lifestyle. From this process particular values emerge in a hierarchical structure that serve as a framework for personal conduct, lifestyle and interactions with others (Pender, 1982, p. 128). For example, the personal value placed on reducing the threat of disease and/or enhancing wellness appears to affect the frequency and intensity with which health protecting and health promoting behaviours are practiced.

Health Locus of Control

Health locus of control is a construct of locus of control which is applied to various health situations. Since

health beliefs, attitudes and behaviour may be exceptionally situation-specific, the measurement of locus of control in studying health behaviour needs to be specific for health (Parcel, Nader & Rogers, 1980). As Rotter (1975) indicated, "...some measure of a very broad generalized expectancy allows prediction in a large number of situations, but at a low level. A narrower or more specific generalized expectancy should allow greater prediction for a situation of the same subclass."

An individual with an external health locus of control orientation may perceive reinforcement for health to come from external sources which could have a locus of control from one of two axis. Those holding a 'powerful other' health locus of control view reinforcement as coming from other people, for example, the family or health professional. An individual holding a 'chance' health locus of control expects that factors which determine one's health are such things as luck, fate or chance. Those holding an internal health locus of control orientation perceive reinforcement for health as a result of one's own actions and behaviours.

Knowledge of a person's health locus of control expectancies, together with the knowledge of his valuation of health contribute to the prediction of health-related behaviours in a particular situation (Wallston & Wallston,

1978). Consideration of the effect of the psychological situation, for example, alternative sources of support for a particular behaviour in a given situation, should also be taken into account for more accurate prediction of behaviour (Lewis, et al., 1978).

Explanation and Summary of the Study's Model

The lifestyle behaviours of adolescents may place them at risk for mental and physical health. Therefore, three variables believed instrumental in determining the nature of the health-related behaviour demonstrated by young people make up the framework for this study (See Figure 1, p. 31). In this model all components mutually interact and influence each other. Health or lifestyle behaviour parameters are determined by the association of three major components: (a) the importance the adolescent attributes to health, that is, the value placed on health, (b) the adolescent's perception of health control, that is, either internal or external and (c) the sources of support, usually psychological, that influence both (a) and (b). The interactive effect of these three locus of control variables impacts upon the quality of behaviours that are exhibited by young people. An understanding of the nature or 'state of the art' of each of these variables enables the health professional to intervene in a productive way and positively influence the adolescent's behaviour pattern.

Research Questions

1. What are the reported behaviours of adolescents 15 to 19 years of age, inclusive, in relation to: (a) exercise, (b) nutrition, (c) substance use, (d) personal health, (e) road and water safety and (f) general lifestyle factors?

2. What are the (a) psychological situations, (b) health values and (c) health locus of control orientations of adolescents?

3. What is the relationship between selected demographic characteristics, themselves as well as between selected characteristics and:

(a) the psychological situation of adolescents

(b) the lifestyle behaviours of adolescents

(c) the health value of adolescents, and

(d) the health locus of control orientations of adolescents?

4. What is the relationship between the lifestyle behaviours of adolescents and:

(a) the psychological situation of adolescents

(b) the health value of adolescents, and

(c) the health locus of control orientations of adolescents?

5. What is the relationship between the health locus of control orientations, themselves, as well as between health locus of control and:

(a) the psychological situation of adolescents and

(b) the health value of adolescents?

6. What is the relationship between health value and the psychological situation of adolescents?

7. What are the common health problems of youth as reported by adolescents?

Purposes of the Study

The primary purposes of this study were: (a) to investigate the relationship of three theorized predictor variables - health value, health locus of control and psychological situation - with the lifestyle behaviours demonstrated by adolescents, (b) to investigate the relationship of demographic characteristics such as age, sex, religion, socioeconomic class, birth order, academic standing and employment with adolescent lifestyle behaviours, (c) to describe the nature of the health-related lifestyle behaviours reported by adolescents and (d) to describe the adolescents' perceptions of the major health problems of youth.

The ultimate purposes of the study were to: (a) aid mental health nurses in the provision of lifestyle counselling by increasing understanding of the variables that influence health decisions, (b) generate hypothesis and research questions that would lead to further research and (c) contribute to nursing theory and practice an understanding of the beliefs, values and behaviours of adolescents that would impact on their nursing care especially in the area of health maintenance and promotion.

CHAPTER II

METHODS AND PROCEDURES

Research Design

This study is a descriptive correlational survey of the relationship between health value, health locus of control and the lifestyle behaviours that are demonstrated by adolescents.

Setting

Twenty-seven classrooms of a metropolitan high school were chosen by the Avalon Consolidated School Board as the site of data collection due to the nature of the study and the availability and accessibility of the subjects. The investigator had no direct contact with the participants of the study although she spoke to all subjects at the beginning of data collection and at the end of the collection period over the school's intercom system.

Sample

The study population consisted of 647 adolescents who attended one high school. A nonprobability, nonrandom sample of all students attending the high school was drawn from the target population of adolescents in a metropolitan area.

Subjects were selected who met the following criteria:

1. The adolescent was between the age of 15 to 19 inclusive.
2. Written parental permission was previously obtained.

3. The adolescent was able to speak, read, write and comprehend English.

The research unit in this study was the adolescent attending high school. The study was limited to English-speaking subjects since the investigator lacked fluency in any other language and the instruments were in English.

The final sample consisted of 336 adolescents. Subjects were taken into the sample during the morning of September 28, 1984.

Procedures for Obtaining Informed Consent

After the Research Committee at Memorial University of Newfoundland approved the research study's protocol, consent to conduct the study in a metropolitan high school was sequentially obtained from the School Board and the principal of the high school.

The investigator required the assistance of the home room teachers to provide each student with a letter of explanation for parents (see Appendix G) and the parental consent form (see Appendix H). The letter explained the nature and purpose of the study, the extent of subject participation, safeguards to preserve confidentiality and the students' right to withdraw from the study at any time and/or refuse to answer any questions. In addition, teachers were responsible for collecting back the completed parental consents and storing them safely until required by the investigator.

From the study population of 647 students, 517 adolescents had returned signed parental permission. Of the 517 adolescents with permission, 464 students agreed to take part in the study following a verbal explanation given by the investigator over the school's intercom (See Appendix I). The instrument was administered by the homeroom teachers to those students who had received parental permission and were willing to be included in the study. Participating students were not required to sign a written consent form - filling out the questionnaire voluntarily was taken as consent. The remaining students in the class - that is, those not participating in the study, used the time as a reading and study period. Four hundred and sixty four students completed at least some parts of the Health Information Survey but only those 336 who fully completed all parts were included in the study sample.

Data Collection

Data Collection Instruments

The data collection instruments, known collectively as the Health Information Survey, were an operationalization of three of the four variables outlined in the theoretical framework. The fourth variable, the psychological situation of the individual, was not formally operationalized due to the absence of any known instrument. The investigator did attempt, however, to assess the psychological situation of

the study participants with several health-related questions. Table 1 describes the variables, the instruments and the location of the instruments. For a detailed explanation of the nature of the data collection instruments, see Appendix F.

Table 1

The Study Variables, the Instruments and their Location

Variables	Instruments	Location
Health Value	Adaptation of Rokeach's Value Survey	Appendix A
Health Locus of Control	Multidimensional Health Locus of Control	Appendix B
Adolescent Lifestyle	Lifestyle Profile	Appendix C
Psychological Situation of the Adolescent	Questions 10, 11, 12, 13, 14 and 15 of Demographic Characteristics	Appendix D

Demographic characteristics. The final section of the Health Information Survey comprised items related to age, sex, grade, religion, socioeconomic status, birth order, academic standing and employment. These variables were identified due to their potential effect on the major variables under study and were measured either to exert

control over their influence or to permit description of the population. The final question (item no. 16) on this section was an open ended question that asked students to identify the major health problems of young people. This question was an attempt to determine the student's awareness of the impact that lifestyle factors have on health and well-being.

The definition and measurement of demographic variables that are not self-explanatory are as follows:

1. Age: Adolescents aged 15-19 years. The ages were categorized into two groups: middle adolescence included students aged 15 and 16 years and late adolescence which included students 17, 18 and 19 years of age (Nelms, 1981).
2. Present grade: The level of education reported by students as being grades ten, eleven or twelve.
3. Socioeconomic class: Students identified their parental occupations and this information was used to categorize them as as upper, middle or lower class based on Blishen's (1976) scale.
4. Place in family: The adolescent's birth order in the family in relation to other siblings and identified as: only child, youngest, middle or oldest child.
5. Academic standing: Average marks on last report card identified by students as mostly A's, mostly B's, mostly C's, mostly D's, or failing.

The questions relating to demographic characteristics are

found in Appendix E.

Sensitivity and Meaningfulness of the Data Collection Instruments

The range of responses permitted by the questions in the data collection instruments did provide some degree of sensitivity but since all but one item was of the ipsative type, the richness of the data was limited. The instruments were meaningful in that they provided (a) information for data analysis and (b) data which had implications for nursing practice, and research.

Data Collection Procedures

All data used in this study were collected by the homeroom teachers during the first class period of the same school day. The investigator met with the principal of a metropolitan high school following initial approval from the School Board to explain the purpose and nature of the study. The principal subsequently met with the teachers regarding the study in progress and their responsibility for distributing and collecting back the parental consent forms as well as the data collection instruments, themselves.

The investigator met briefly with each teacher on the morning of data collection to receive the consent forms, provide the questionnaires and personally answer any questions the teachers might have regarding the study. At

the beginning of the first class the investigator spoke to the entire school body over the intercom system. The investigator identified herself to students as a registered nurse and graduate student, gave a verbal explanation of the study and offered to answer any questions pertaining to the investigation (See Appendix I). Following this introduction the homeroom teachers distributed the questionnaire to those students who had returned written parental consent forms. Students who were willing to take part in the investigation and who had received written parental permission, proceeded to complete the data collection instruments. The remaining students, that is, those not partaking in the investigation, used this class time as a study period. When participating students finished filling out the questionnaires, the teachers collected them and brought them to the investigator at the school's general office. Students averaged 25 minutes to complete the survey with a range from 15 to 40 minutes.

Because the information obtained was confidential, the data remained anonymous. The subject's name was not recorded on any of the questionnaires. Data recording sheets were number coded only and the key to the system was maintained securely and separately from the data. All data and consent forms were stored in a locked metal box and at the conclusion of data analysis, all information was destroyed. Thus, student confidentiality was assured.

Pretesting

A pretest of the data collection procedures and the instrumentation administration was conducted with twelve adolescents who were representative of the study subjects. The investigator administered the Health Information Survey to 12 students from the school where the study was to be conducted. These students had obtained parental permission and were volunteers from a Grade ten class. Research protocol was followed.

The purpose of the pretest was to determine the clarity of the instrument's instructions, the feasibility of the administration procedure and the approximate length of time required for completion of the questionnaire. An extra sheet was added to the questionnaire to elicit response from the volunteers regarding any problems they encountered while filling out the survey and any general comments they might have about the instrument (See Appendix J).

No changes in the instrument or the administration procedure were necessary as a result of the pretest. The students indicated that instructions were clear and all questions easily understood. The pretest took approximately 25 minutes.

Data Analysis

The data resulting from the data collection tools were categorized, coded and/or content analyzed. Data analysis

consisted of a description of the data and correlational analysis. The nature of the data was predominantly ordinal although some data were nominal and interval.

Since the number of variables and the number of relationships tested were substantial, computer analysis using the Statistical Analysis System (Freund & Littell, 1981) was used in addition to manual analysis. Some ordinal data were collapsed to nominal data when the range and frequencies in the distribution were too small for meaningful analysis at an ordinal level.

Statistical Analysis of the Data

The data were analyzed in relation to the research questions and the theoretical framework. Frequency tables, measures of central tendency and variability were employed to describe the adolescent sample. The particular statistical measure used was dependent on the level of measurement. Therefore, for nominal data, the mode was used; for ordinal data, the median was used and for interval data, the mean and median were used. The range, standard deviation and interquartile range were also utilized to determine the degree to which the sample subjects were similar on a particular attribute or the extent to which there were inter-subject differences (Polit & Hungler, 1978, p. 524).

Inferential statistics were used to study the correlations between the variables. A combination of both

parametric and non-parametric tests were used depending on the level and distribution of the data.

Chi-square analysis was the major statistic employed to determine the significance of the relationship between two variables that were at the nominal level of measurement (Waltz & Bausell, 1981, p. 245). Acceptance of a level of significance of $p \leq .05$ was permitted in this investigation. If the Chi-square test was significant, the Phi Coefficient and Cramer's V procedures determined the nature an extent of the relationship (Waltz & Bausell, 1981, p. 250).

The Pearson r, an important parametric correlation, was used if its underlying assumptions were met, to measure the degree of association between two variables that were at the interval level of measurement (Shelley, 1984, p. 182). The Kendall Rank Correlation Coefficient (Kendall's tau [ ]) was selected to measure the degree of association between two variables that were measured on an ordinal scale (Waltz & Bausell, 1981, p. 265).

Finally, content analysis was done item-by-item for the responses to the open-ended question relating to the health problems of today's youth. The data were coded at a nominal level of measurement by the investigator only and a categorization scheme was formulated by the investigator so that the research goals and substance of the data were represented. Categories were designed to be mutually

exclusive (Polit & Hungler, 1978, p. 310).

Limitations of the Study

1. Since a nonrandom sample was used, the sample was not representative of the population. Although the respectable number of subjects who participated in the study contributed to the soundness of the findings, the results must be restricted to the study population.
2. The Lifestyle Profile and the measure of psychological situation have not been rigorously scrutinized for reliability and validity and therefore more testing is necessary before results can be definitively interpreted.
3. The student's knowledge that he/she was participating in a research study may have influenced his/her responses.
4. The data collected were based on the subject's own perceptions and were limited to his/her insight, honesty and willingness to impart information.
5. Since over 250 relationships were explored, it is recognized that, at an alpha of .05, 13 relationships could be significant by chance.

CHAPTER III

THE RESULTS

In this chapter the results of the survey of high school students are presented. First the demographic characteristics of the sample will be described. Then the sample will be described in terms of the main variables: lifestyle, psychological situation, health value and health locus of control orientation. Lastly, the relationships among the variables will be presented.

Descriptive Characteristics of the Sample

A total of 464 adolescents participated in the study but only 336 students submitted completed and usable questionnaires. One hundred and twenty-eight students were dropped from the study population due to incomplete data. Appendix K gives some descriptive characteristics of the nonrespondents. The remaining group, the 336 who answered all questions represented 52.0% of the total student body and 72.4% of all who participated. Females comprised 46.1% (n=155) of the sample while males made up 53.9% (n=181). The mean age of the adolescents was 16.1 with a standard deviation of 1.3. There were 87 (25.9%) 15 year olds, 102 (30.4%) 16 year olds, 97 (28.9%) 17 year olds, 39 (11.6%) 18 year olds and 11 (3.2%) 19 year olds in the study. All students were in Grade ten (n=109, 32.5%), Grade eleven

(n=102, 30.4%) and Grade twelve (n=125, 37.1%). Regarding religious orientation, the majority of students (n=198, 58.9%) were of Protestant faith while 8.0% (n=27) claimed no religious affiliation whatsoever. Information on the economic status of the students was based on parental occupations and revealed that 23.8% (n=80) were upper class, 41.9% (n=141) were middle class and 34.3% (n=115) were lower class according to Blishen's (1976) classification. The frequency distribution of the adolescents' sex, age, grade, religion and socioeconomic status is presented in Table 2.

Table 2

Frequency Distribution and Percentages Related to Age, Sex, Grade, Religion and Socioeconomic Status

Variable	No. of Subjects	%
Age		
Fifteen	87	25.9
Sixteen	102	30.4
Seventeen	97	28.9
Eighteen	39	11.6
Nineteen	11	3.2
Sex		
Female	155	46.1
Male	181	53.9
Grade		
Ten	109	32.1
Eleven	102	30.1
Twelve	125	37.8

(table continues)

Table 2 (cont'd)

Frequency Distribution and Percentages Related to Age, Sex, Grade, Religion and Socioeconomic Status

Variable	No. of Subjects	%
Religion		
Protestant	198	58.9
Catholic	21	6.3
Other	90	26.8
None	27	8.0
Socioeconomic Class		
Upper	80	23.8
Middle	141	41.9
Lower	115	34.3

Note: n=336

Information regarding the birth order of the adolescents revealed a very small percent who were only children (n=11, 3.2%) and a fairly similar distribution of the remaining sample as youngest, middle and oldest children. Over four-fifths (n=292; 86.9%) of the adolescents reported maintaining an average or better report card the previous term while 4.2% (N=14) described themselves as failing. Part-time employment was a reality for 114 (33.9%) students in this sample. Table 3 describes the frequency distribution of birth order, academic standing and part-time work.

Table 3

Frequency Distribution and Percentages Related to Birth Order, Academic Standing and Part-time Employment

Variable	No. of Subjects	%
Birth Order		
Only Child	11	3.2
Youngest Child	125	37.3
Middle Child	104	31.0
Oldest Child	96	28.5
Average Marks on Last Report		
Mostly A's	54	16.1
Mostly B's	115	34.2
Mostly C's	123	36.6
Mostly D's	30	8.9
Failing	14	4.2
Part-Time Employment		
Yes	114	33.9
No	222	66.1

Note: n=336

Concerning health-related matters, nearly one-quarter of the study sample (n=75; 22.3%) had not visited a health professional in the previous 12 months but nearly one-fifth (n=60; 17.9%) had four or more visits. Twenty-six (7.7%) adolescents acknowledged the presence of a major or chronic illness. The inadequacy of health information hindered responsible decision making for 22.6% (n=76) of the sample and for 55.4% (n=186) of the students their parents' involvement in keeping the family healthy and well was

usually limited to times of illness. Most of the adolescents (n=322; 95.9%) perceived their health status as average or better than average in comparison with others their age. Nearly the same number (n=314; 93.5%) described themselves as "somewhat" or "very much" concerned about their health. The frequency distribution of the health-related variables is presented in Table 4.

When these health-related variables are used to describe the psychological situation of the adolescents under study, 276 or 82.1% were classified as having a positive psychological situation. Sixty students (17.9%) scored eight or more on this measure, that is, had a negative psychological situation. The median score of the total sample was eight with an interquartile range of 1. Scores ranged from six to twelve. There was no difference in the median score of males and females and the younger and older

Table 4

Frequency Distribution and Percentages Related to the Health-Related Variables

Variable	No. of Subjects	%
Frequency of Health Contact		
Never	75	22.3
One to Three Times	201	59.8
Four to Six Times	28	8.3
More than Six Times	32	9.6

(table continues)

Table 4 (cont'd)

Frequency Distribution and Percentages Related to the Health-Related Variables

Variable	No. of Subjects	%
Perceived Health Status		
Below Average	14	4.1
Average	230	68.5
Above Average	92	27.4
Adequacy of Health Information		
Yes	260	77.4
No	76	22.6
Parent's Involvement in Family's Health		
Very Little	10	3.0
Mainly When Illness Present	186	55.4
On going	140	41.6
Presence of Major Illness		
Yes	26	7.7
No	310	92.3
Concern For Health		
Not At All	22	6.5
Somewhat	165	49.1
Very Much	149	44.4

Note: n=336

adolescents. Table 5 presents a description of the adolescents' scores on the measure of psychological situation.

Table 5

Description of Adolescents' Scores on the Measure of Psychological Situation

Description of Scores	Total Sample	Sex		Age	
		Male	Female	Younger	Older
Number	336	181	155	189	147
Median	8	8	8	8	8
Interquartile range	1	1	1	1	1
Frequency of scores equal to and below median	82.1%	83.4%	80.6%	85.1%	78.2%
Frequency of scores above median	17.9%	16.6%	19.4%	14.9%	21.8%
No. Ss with positive psychological situation	276	151	125	161	115
No. Ss with negative psychological situation	60	30	30	28	32
Actual range of scores	6-12	6-11	6-12	6-10	6-12
Possible range of scores	6-12	6-12	6-12	6-12	6-12

Research Questions

The first two research questions (see pp. 39-40) address three of the four variables in the theoretical framework: adolescent lifestyle behaviours, health locus of control and

health value. The fourth variable, the psychological situation of the individual, was described in the preceding section on Descriptive Characteristics of the Sample. The next three questions address the correlations between the major variables. The final research question identifies the major health problems of youth as defined by the sample.

Adolescent Lifestyle Behaviours

Part III of the Health Information Survey, the Lifestyle Profile (LP), measured six aspects of lifestyle: (a) exercise, (b) nutrition, (c) substance use, (d) personal health, (e) road and water safety, and (f) general factors. Each of these categories could be scored independently by summing the responses to the items that comprised each subscale. A total LP score was also computed. A description of the adolescents' scores on the subscale components of the LP as well as the total scores is presented in Table 6. For three of the categories of LP - (a) exercise, (b) nutrition and (c) general factors, the adolescents' responses fell within the relatively lower ranges in comparison with the possible extent of the ranges of responses; this finding suggests that in these areas, at least, adolescents are demonstrating healthy lifestyle practices.

Scores on the LP are described in two ways. The comparative findings within the sample (determined by examining the frequencies of the adolescents' scores that

Table 6

Description of Adolescent Scores on the Lifestyle Profile

Lifestyle Components	Med.	Inter-quartile Range	% of Scores Equal to and < Median	% of Scores > Median	Actual Range of Scores	Poss. Range of Scores
Exercise	11	6	71.7%	28.3%	5-21	5-21
Nutrition	4	2	86.3%	13.7%	2-8	2-8
Substance Use	12	8	52.6%	47.4%	10-50	10-50
Personal Health	9	6	54.5%	45.5%	5-19	5-21
Road and Water Safety	13	6	55.1%	44.9%	9-37	9-37
General	8	2	82.1%	17.9%	4-18	4-18
Total LP	69	16	57.1%	42.9%	37-143	35-153

Note: n=336 Low scores indicate healthy lifestyle practices in all areas.

fell above & below the median) as well as the recommended scores suggested by Health and Welfare Canada are both used to help describe the behaviours of the adolescent sample. Each subscale will be described individually followed by a description of the scores on the total Lifestyle Profile.

Exercise. Examination of the scores on this subscale revealed that the majority of adolescents (n=228; 67.9%) exhibited a less active lifestyle than recommended by Health and Welfare Canada. Scores less than eight indicated healthful fitness practices but the median score for these students was eleven. One hundred twenty-eight students (38.1%) seldom engaged in any vigorous exercise; 56 or 16.7% rarely participated in any kind of physical activity and 82 or 24.5% walked or jogged less than one mile per day.

Scores for males on this subscale were generally lower than the scores for females (med. = 9 vs. med. = 11). In four of the five items on this subscale a greater number of males than females reported the healthiest behaviour choice possible. There was no difference in the median scores of the younger adolescents-i.e. those students 15 and 16 years of age and the older students -i.e. those 17, 18 and 19 years of age, although the range of scores for older students was wider at the negative end. In addition, students from upper and middle class backgrounds had lower median scores (med.=9) than the students from lower class circumstances (med.=11).

Nutrition. Scores on this subscale indicated behaviour that was more in keeping with healthy lifestyle practices. Scores less than five identify positive nutritional habits and the median score for this sample was four. Eighty-six

percent (n=289) of the students reported scores that were equal to or less than the median. Sixty- eight percent claimed they were not overweight and that same number (n=230) reported eating a balanced diet every day.

Scores in nutrition were similar to those found with the subscale exercise. The median score for females (med.=4) was higher than that for males (med.=2) and there were no reported differences in the nutrition practices of the younger and older adolescents (med.=4). Students from upper class backgrounds reported a lower median score than students from middle or lower class circumstances (med.=2 vs. 4).

Substance use. This subscale examined collectively behaviours related to alcohol, drugs and tobacco use and scores indicated that forty-seven percent (n=158) of the students exhibited unhealthy practices. The median score for this category was 12 with 53% (n=178) of the adolescents scoring at or below this number. Males were identified as demonstrating more unhealthy behaviours than females. Not only were the median scores for males (med.=14) higher than for females (med.=12) but the range of scores for males was much wider at the negative end than the range for females. This indicated that some males exhibited extremely detrimental behaviours in this dimension of lifestyle. Younger adolescents demonstrated better practices than older students seen by a median score of ten as compared to 14 for

older students. Students living in upper class circumstances again engaged in more healthy behaviours than those from middle or lower class circumstances (upper med.=10; others=12).

In the area of alcohol use 71.1% (n=239) of the sample scored four out of a possible 20 points. Although this indicated the best possible score that could be measured by the instrument, it did not differentiate between those students who didn't drink at all and those that drank up to seven drinks per week. What was determined, however, was that 95 (28.2%) students reported drinking eight or more drinks of beer, wine or liquor per week while 30 adolescents (8.9%) reported drinking more than 16 drinks per week.

The median score for the items pertaining to drug use was three for this sample of adolescents. Nearly two-thirds (65.8%) of the students had scores equal to the median indicating no improper drug use. One hundred and fifteen students (34.2%), however, reported scores higher than the median which indicated unhealthy drug use. One hundred and six adolescents or 31.5% claimed to take drugs illegally; 63 or 18.8% reported combining drugs with alcohol and 22 students or 6.5% of the sample claimed to use painkillers improperly.

Regarding tobacco, just under two thirds of the students reported no tobacco use whatsoever. Sixty-three percent

(n=212) had scores that were equal to the median score of 3 while one hundred and twenty-four students reported scores over the median which indicated tobacco use. One hundred and twenty-one students (36.1%) reported smoking cigarettes with 61 or 18.2% of the total sample smoking more than 10 cigarettes per day. A very small number (n=10 or 3.0%) claimed to smoke cigars every day and an even smaller number (n=3 or 0.9%) reported smoking a pipe.

The recommended score by Health and Welfare Canada for the collective subscale substance use is not greater than 18 points. It must be remembered, however, that the Lifestyle Profile was designed for adult Canadians and consequently this score was not an appropriate one to be used for comparison. Most of the adolescents in this sample were not even of legal drinking age. A description of scores on the subscale components exercise, nutrition and substance use of the LP, broken down by age, sex and socioeconomic class is presented in Table 7.

Personal health. Scores on this subscale of the LP are generally higher than indicated by Health and Welfare Canada. The median score for this sample was nine while the recommended score was seven. One hundred and twenty-five adolescents fell within the recommended range while 183 (54.5) score at or below the median. A total of 165 (49.1%) students reported experiencing depression with 24 (7.1%)

Table 7

Description of Adolescents' Scores on the Subscales Exercise, Nutrition and Substance Use by Sex, Age and SEC

Lifestyle Components	No.	Med.	Inter-quartile Range	% of Scores Equal to and < Median	% of Scores > Median	Actual Range of Scores
EXERCISE						
Sex						
Male	181	9	4	57.5%	42.5%	5-19
Female	155	11	4	61.9%	38.1%	5-21
Age						
Younger	189	11	6	66.1%	33.9%	5-19
Older	147	11	6	72.5%	27.9%	5-21
Sec						
Upper	80	9	4	55.0%	45.0%	5-17
Middle	141	9	6	50.3%	49.7%	5-21
Lower	115	11	4	66.1%	33.9%	5-19
NUTRITION						
Sex						
Male	181	2	2	53.4%	46.6%	2-8
Female	155	4	2	80.6%	19.4%	2-8
Age						
Younger	189	4	2	87.3%	12.7%	2-8
Older	147	4	2	85.0%	15.0%	2-8
Sec						
Upper	80	2	2	66.2%	33.8%	2-6
Middle	141	4	2	86.5%	13.5%	2-8
Lower	115	4	2	80.9%	19.1%	2-8

(table continues)

Table 7 (cont'd)

Lifestyle Components	No.	Med.	Inter-quartile Range	% of Scores Equal to and < Median	% of Scores > Median	Actual Range of Scores
SUBSTANCE USE						
Sex						
Male	81	14	10	60.2%	39.8%	10-50
Female	155	12	6	59.4%	40.6%	10-32
Age						
Younger	189	10	6	54.5%	45.5%	10-42
Older	147	14	12	57.1%	42.9%	10-50
Sec						
Upper	80	10	7	52.5%	47.5%	10-50
Middle	141	12	8	51.1%	48.9%	10-46
Lower	115	12	8	51.3%	48.7%	10-50

students claiming to be frequently troubled by depressed mood. Forty-six percent or 153 adolescents reported experiencing anxiety that was severe enough to interfere with daily activities. For 10 (2.9%) students severe anxiety was a frequent occurence. One hundred and thirty-four adolescents (39.9%) reported insufficient sleep and 45 (12.8%) students admitted to lack of knowledge about venereal disease. For females, breast self-examination was practiced at least occasionally by 27.7% and never by one hundred and twelve female students (33.3%).

When computing scores for this subscale the item pertaining to breast self-examination was omitted to avoid skewing the scores. Nonetheless males had a lower median score (med.=7) than females (med.=9) and the male median was also synonomous with the score recommended by Health and Welfare Canada. Younger and older adolescents exhibited no differences in median scores (med.=9) nor did students from upper and middle class backgrounds (med=9). Adolescents from lower class circumstances had the highest median at eleven.

Road and water safety. Lifestyle behaviours related to the dimension of road and water safety revealed that the median score for adolescents in this sample was 13 which is also identical to the recommended score of 13. Forty-five percent (n=151) of the students, however, scored above the median which indicated a lack of safety in this area. One hundred and sixteen students (34.5%) reported that they never or only occasionally wore seat belts; 180 (53.6%) often drove in excess of the speed limit and 14.9% (n=50) occasionally drove under the influence of alcohol. Thirty-eight percent (n=128) of the sample indicated that they drove a motorcycle or snowmobile but 10.7% reported not wearing a safety helmet when operating the vehicle. Ninety-four percent (n=316) of the students claimed awareness of water safety rules but 55 (13.4%) students admitted to not wearing a life jacket when on the water. The males in this sample demonstrated less

desirable behaviours than females. The median score for males was 15 compared with 13 for females, and, in addition, the range of scores for males was wider at the negative end. Younger adolescents had a lower median (med.=13) than older ones (med.=15) and students from upper and lower class backgrounds had a lower median (med.=13) than middle class students (med.=15).

General factors. In this category of miscellaneous items the median score for the overall sample was eight which was higher than the recommended score of six and indicative of inadequate healthful practices. One hundred and eight-nine students (56.2%) scored higher than recommended but only 17.9% scored greater than the median. Over one-quarter of the students watched more than four hours of television per day while 14.6% (n=49) watched less than one hour per day. Fifty-three students (15.8%) claimed to be unfamiliar with first aid procedures and 50 students (14.9%) reported that they smoked in bed.

Similar trends are found in this category compared with road and water safety and substance use. Males had a higher median (med=8) than females (med=6) and had a range of scores wider at the negative end. Older adolescents had a higher median than younger and middle class students had a higher median than students from upper or lower class

circumstances. A description of scores on the subscale components personal health, road and water safety and general factors of the LP broken down by age, sex and socioeconomic class is presented in Table 8.

Table 8

Description of Adolescents' Scores on the Subscales Personal Health, Road and Water Safety and General Factors by Age, Sex and SEC

Lifestyle Components	No.	Med.	Inter-quartile Range	% of Scores Equal to and < Median	% of Scores > Median	Actual Range of Scores
PERSONAL HEALTH						
Sex						
Male	181	7	4	64.1%	35.9%	5-14
Female	155	9	2	75.5%	24.5%	5-14
Age						
Younger	189	9	4	55.5%	44.5%	5-14
Older	147	9	6	53.1%	46.9%	5-14
Sec						
Upper	80	9	4	55.5%	44.5%	5-12
Middle	141	9	6	56.0%	44.0%	5-12
ROAD AND WATER SAFETY						
Sex						
Male	181	15	8	58.6%	41.4%	9-37
Female	155	13	4	66.5%	33.5%	9-31

(table continues)

Table 8 (cont'd)

Lifestyle Components	No.	Med.	Inter-quartile Range	% of Scores Equal to and < Median	% of Scores > Median	Actual Range of Scores
Age						
Younger	189	13	6	59.8%	40.2%	9-29
Older	147	15	8	57.8%	42.2%	9-37
Sec						
Upper	80	13	5	62.5%	37.5%	9-31
Middle	141	15	7	62.4%	37.6%	9-31
Lower	115	13	8	56.5%	43.5%	9-37
GENERAL FACTORS						
Sex						
Male	181	8	2	83.4%	16.6%	4-18
Female	155	6	2	55.5%	44.5%	4-16
Age						
Younger	189	6	2	53.4%	46.6%	4-16
Older	147	8	2	79.6%	20.4%	4-18
Sec						
Upper	80	6	2	58.7%	41.3%	4-12
Middle	141	8	2	80.1%	19.9%	4-14
Lower	115	8	2	80.0%	20.0%	4-18

Total LP. Examination of total scores on the Lifestyle Profile revealed that the median score for these students was 59 which was higher by four points than the total recommended by Health and Welfare Canada. Less than half the sample, that is, one hundred and forty-three adolescents (42.6%) fell within the range designated to identify behaviours that were

conducive to healthful living. Only 8.0% (n=27) reported scores that placed them in the top or excellent category while 116 or 34.5% fell within the good or acceptable range. Ninety-three students (27.7%) engaged in lifestyle practices that placed the individuals at risk for health while 100 students (29.8%) demonstrated behaviours that were hazardous to health. Table 9 provides information related to the breakdown of the adolescents' scores according to the scale developed by Health and Welfare Canada.

Table 9

Breakdown of Adolescents' Scores on the Lifestyle Profile

Scoring Categories	Number	Percentage
Excellent		
35-40	2	0.6%
41-45	25	7.4%
Total	27	8.0%
Good		
46-50	40	11.9%
51-55	76	22.6%
Total	116	34.5%
Risky		
56-60	49	14.6%
61-65	44	13.1%
Total	93	27.7%
Hazardous		
66-70	34	10.1%
71-75	30	8.9%
76-85	19	4.7%
86	17	5.1%
Total	100	29.8%

Overall, males had a lower median score at 57 than did females at 59 but the range of scores for males was greater by 44 points at the negative end. This indicated that while the majority of male students demonstrated more healthy lifestyle practices than female students, a small number (n=4) engaged in behaviours that were seriously detrimental to health. Table 10 describes the scores on the LP.

Table 10

Description of Adolescents' Scores on the LP by Sex, Age and SEC

Lifestyle Profile	No.	Med.	Inter-quartile Range	% of Scores Equal to and < Median	% of Scores > Median	Actual Range of Scores
Sex						
Male	181	57	16	55.8%	44.2%	39-143
Female	155	59	16	51.6%	48.4%	37-99
Age						
Younger	189	57	12	55.9%	44.1%	37-91
Older	147	61	18	52.4%	47.6%	43-143
SEC						
Upper	80	53	16	53.9%	46.1%	41-103
Middle	141	59	18	58.3%	41.7%	37-109
Lower	115	61	16	58.4%	41.6%	45-93

The mode on the LP for males equaled 51 while for females it was 59. Older teenagers had a higher median (med.=61) than younger students (med.=57) and again the range of scores identified the older student as having more extreme unhealthy

practices than the younger student. Regarding socioeconomic status, the upper class students had the lowest median and the lower class students the highest (upper med. = 53; middle med. = 59; lower med. = 61) although it was the middle class students who had the widest range of scores at the negative end.

Health Value

A modification of Rokeach's Value Survey was used to determine the ranking or value that an adolescent gave to health in relation to nine other terminal values defined as preferable end states of existence. This value survey required each student to rank health and 9 other values using 1 to represent the most important value and ten to represent the least important value.

An analysis of the rankings given to the value health suggested that the majority of subjects valued health highly. Over 75% of the students (n=255) ranked health within the top five values while less than one-quarter of the adolescents (n=81; 24.1%) gave health a ranking below five. The median score was three, with an interquartile range of four. The rankings ranged from one to ten. Female subjects gave health the highest ranking with a median equal to two. The median for males was 3.5. For both sexes the mode was one. There was no difference in the median and mode for the younger and older adolescents nor for the middle and lower class

adolescents (med. = 3; mode = 1). Surprisingly, it was the students from upper class backgrounds that had the lowest ranking for health as a value (med. = 4). Table 11 describes the frequency of health ratings on the Health Value Survey.

Table 11

Frequency of Health Ratings on the Health Value Survey

Position of Health as a Value	Frequency	%
First	99	29.5%
Second	52	15.5%
Third	45	13.4%
Fourth	32	9.5%
Fifth	27	8.0%
Sixth	38	11.3%
Seventh	18	5.4%
Eighth	9	2.0%
Ninth	9	2.7%
Tenth	7	2.7%

Health Locus of Control Orientations

Health locus of control orientations were measured by the Multidimensional Health Locus of Control (MHLC) Scale. The MHLC measures three reinforcements for health: (a) internal, (b) powerful others and (c) chance which are scores separately by summing the responses to the items that

constitute each subscale. The range of possible scores for each subscale is 6-36.

The mean MHLC subscale scores for the total sample were: IHLC, 26.3; CHLC, 15.9 and PHLC, 18.5. Thus, adolescents in this study scored highest on items that reflected an internal health orientation and lowest on items that represented a chance health orientation. Table 12 describes the adolescents' scores on the MHLC scales.

Table 12

Description of Adolescents' Scores on the MHLC Scale

Description of Scores	IHLC	CHLC	PHLC
Mean	26.3	15.9	18.5
Standard Deviation	4.3	4.8	5.0
Median	27	16	19
Frequency of Scores Equal to Median	9.8%	8.9%	9.5%
Frequency of Scores Less than Median	47.3%	47.0%	47.9%
Frequency of Scores Greater than Median	42.9%	44.1%	42.6%
Actual Range of Adolescents' Scores	13-36	6-30	6-32
Possible Range of Adolescents' Scores	6-36	6-36	6-36

Note: High scores indicated strong beliefs that reinforcement for health comes from that source

Males were slightly more internal than females and believed more strongly in the impact that chance and fate had on health. Females had stronger beliefs about the influence of powerful others on well being. Younger adolescents were also more internal than older students and had less belief in the influence of chance. Students from middle class backgrounds had the strongest overall beliefs about the effect of internal reinforcement while upper class students had the weakest beliefs in this area. Adolescents from lower class circumstances reported stronger beliefs in the influence of luck and powerful others than did any other students. Table 13 describes the intergroup differences on MHLC.

An item by item analysis of the health beliefs on the subscales of the MHLC revealed that the largest number of students indicated some degree of agreement with item no. 13 (see Appendix B) "If I take care of myself I can avoid illness." This item was included on the IHLC subscale. The second most strongly held belief was no. 12 - "The main thing which affects my health is what I myself do." which is also part of the IHLC subscale. The two strongest held beliefs on the PHLC were no. 14 - "When I recover from an illness, it's usually because other people (e.g. doctors, nurses, family, friends) have been taking good care of me." and no. 3 - "Having regular contact with my physician is the best way for

Table 13

Comparison of Intergroup Differences on the Scores of MHLC

Subscales	Sex		Age		SEC		
	Male	Female	Younger	Older	Upper	Middle	Lower
IHLC							
Mean	26.5	26.1	26.5	26.1	25.9	27.0	25.8
SD	4.5	4.0	4.1	4.5	4.4	3.9	4.6
Median	27	26	27	27	26	27	26
Mode	26	27	27	24	25	27	24
Range	13-36	14-35	14-36	13-35	14-34	17-36	13-34
CHLC							
Mean	16.4	15.4	15.6	16.5	15.6	15.5	16.7
SD	5.1	4.4	5.0	4.5	4.5	4.5	5.3
Median	16	15	15	16	15	16	16
Mode	16	11	13	16	15	17	12
Range	6-30	6-26	6-28	7-30	6-27	6-27	6-30
PHLC							
Mean	18.3	18.8	18.6	18.4	17.4	18.3	19.6
SD	5.3	4.7	5.2	4.8	5.3	4.7	5.2
Median	19	19	19	19	18	19	19
Mode	19	19	22	19	19	22	19
Range	6-32	8-31	6-32	6-31	6-30	6-27	9-32

me to avoid illness." On the CHLC the two beliefs that received the most agreement were no. 16 - "If it's meant to be I will stay healthy." and no. 4 - "Most things that affect my health happen to me by accident."

An analysis of the beliefs in each subscale that adolescents indicated were least strongly held included no. 8 - "When I get sick I am to blame." for the IHLC. No. 10 -

"Health professionals control my health." was most strongly disagreed with on the PHLC while no. 9 - "Luck plays a big part in determining how soon I will recover from an illness." was the least strongly held on CHLC. Table 14 describes the frequencies of the strongest and least strongest held beliefs on each of the subscales.

Table 14

Frequency of the Most Strongly and Least Strongly Held Beliefs on the Subscales of MHLC

Item No.	Health Belief	Subscale	Frequency	%
13	If I take care of myself I can avoid illness.	IHLC	306	91.1%
8	When I get sick I am to blame.	IHLC	150	44.6%
14	When I recover from an illness, it's usually because other people (e.g. doctors, nurses, family, friends) have been taking good care of me.	PHLC	222	66.1%
10	Health professionals control my health.	PHLC	42	12.5%
16	If it's meant to be I will stay healthy.	CHLC	128	38.1%
9	Luck plays a big part in determining how soon I will recover from an illness.	CHLC	41	12.2%

Classification of adolescents according to their scores on MHLC. As the MHLC scale provides each subject with three scores: IHLC, CHLC and PHLC, the first assessing "internality" and the other two separate aspects of "externality", adolescents in this sample were classified as one of eight types. The particular type which characterized an individual was determined by whether his/her score fell above (high) or below (low) the median on each of the subscales (K. Wallston, personal communication, July, 1984). For example, students were considered "pure internal" when they scored above the median on the IHLC subscale and below the medians on both PHLC and CHLC subscales. Fifty-three adolescents in this sample had scores which placed them in this category - high IHLC, low CHLC and low PHLC (HI LC LP). Twenty-eight students had scores which classified them as "pure powerful other external" that is low IHLC low CHLC high PHLC (LI LC HP). There were 47 students considered as "pure chance external" meaning they had scores low on IHLC, low on PHLC and high on CHLC (LI HC LP). Fifty-one students had scores which placed them in the "double external" category meaning they scored low on IHLC and high on both CHLC and PHLC (LI HC HP). The remaining adolescents (46.7%; n=157) were a mixture of internality and externality. Table 15 provides a breakdown of the eight types based on subscale scores.

Table 15

Classification of Adolescents Based on MHLC Scores

Classification	Frequency	%
High IHLC, Low CHLC, Low PHLC (HI LC LP)	53	15.8%
High IHLC, High CHLC, High PHLC (HI HC HP)	52	15.5%
Low IHLC, High CHLC, High PHLC (LI HC HP)	51	15.2%
Low IHLC, High CHLC, Low PHLC (LI HC LP)	47	14.0%
High IHLC, Low CHLC, High PHLC (HI LC HP)	44	13.1%
Low IHLC, Low CHLC, Low PHLC (LI LC LP)	33	9.8%
Low IHLC, Low CHLC, High PHLC (LI LC HP)	28	8.3%
High IHLC, High CHLC, Low PHLC (HI HC LP)	28	8.3%
Total	336	100.0%

A descriptive analysis of the eight locus of control types. Fifty-three adolescents, 29 females (54.7%) and 24 males (45.3%) had scores which classified them as "pure internal", that is HI LC LP. The majority (n=37) were 15 or 16 years of age while 16 adolescents were older. Just over half these students (n=27) scored within the recommended range on the Lifestyle Profile and two-thirds were considered as high health valuers. The majority of these students (n=26) were from middle class circumstances. The median score on the LP was 57 (interquartile range = 19) with a range of scores from 37 to 87. The median score for health value was

2 with a interquartile range of 3. The mean scores on the MHLC scales for this group were: (a) IHLC = 29.5, SD = 2.1, (b) CHLC = 11.9, SD = 2.4 and (c) PHLC = 14.0, SD = 3.0.

There were 52 students, 20 females (38.5%) and 32 males (61.5%) who belonged to the mixed HI HC HP group. These students had scores above the median on each of the three subscales. There was nearly an even distribution of younger (n=27) and older adolescents (n=25) and a majority who were evenly distributed between middle and lower class backgrounds (n=42 middle and lower; n=10 upper). Twenty-nine students (55.7%) had higher than recommended scores on the LP and 22 students were considered low health valuers. The median score on the LP was 57 (interquartile range = 18) with a scoring range from 43 to 95. The median score for health value was 3 with an interquartile range of 4. The mean scores on the MHLC scales were: (a) IHLC = 29.2, SD = 1.9, (b) CHLC = 19.9, SD = 3.2 and (c) PHLP = 23.2, SD = 3.6.

The low internal, high chance and high powerful others (LI HC HP) health locus of control type - i.e. the "double" external group, was comprised of 24 females and 27 males. Twenty-nine (56.9%) students were 15 or 16 years of age while 22 (43.1%) were 17 or older. Again there was almost an equal distribution of middle and lower class backgrounds (n=39) while 12 students were of upper class circumstances. Twenty-nine students (56.8%) valued health highly and 22

adolescents (43.1%) had LP scores that indicated healthy behaviours. The median score for the LP was 57 with an interquartile range of 18. Three was the median score for health value with an interquartile range of four. The mean scores on the MHLC scales were: (a) IHLC = 23.2, SD = 2.4, (b) CHLC = 19.5, SD = 3.1 and (c) PHLC = 21.8, SD = 2.6.

Twenty-six (55.3%) males and 21 (44.7%) females comprised the low internal, high chance, low powerful others (LI HC LP) health locus of control type, that is the "pure" chance external group. Twenty-two (46.8%) students were less than 17 years of age while 18, 15 and 14 students were from lower, middle and upper class families respectively. Nearly 62% (n=29) of the adolescents were low health valuers while 39 (82.9%) students had LP scores that were higher than recommended by Health and Welfare Canada. The median LP score was 65 (interquartile range = 18) and the median health value score was 3 with an interquartile range of 4. The mean scores on the MHLC scales were: (a) IHLC = 22.3, SD = 2.6, (b) CHLC = 19.9, SD = 3.4 and (c) PHLC = 14.8, SD = 2.8.

The high internal, low chance and high powerful others health locus of control type (HI LC HP) consisted of 25 (56.8%) males and 19 (43.2%) females. Fifty-nine percent (n=26) were less than 17 years old with the greatest number (n=20) coming from middle class backgrounds. Twenty-eight students (63.6%) were high health valuers and that same

number also had LP scores within the recommended range. The median score on the LP was 53 with an interquartile range of 10. The median score for health value was three with an interquartile range equal to four. The mean values on the MHLC scales were: (a) IHLC = 30.4, SD = 2.6, (b) CHLC = 11.7, SD = 2.4 and (c) PHLC = 22.7, SD = 2.7.

The low internal, low chance and low powerful others health locus of control type (LI LC LP) was composed of students who didn't have strong beliefs about any of the three sources of health reinforcement. Eighteen (54.6%) females and 15 (45.4%) males had MHLC scores that classified them as belonging to this type. There was almost an equal number of young and older adolescents (51.5% were 15 or 16 years) and a larger number of adolescents (36.4%) from upper class backgrounds. Twenty-one (63.4%) were high health valuers but over half (54.5%) had LP scores that placed them at risk for health. The median score on the LP was 57 with an interquartile range of 19. Three was again the median score for health as a value (interquartile range = 3). The mean scores for the MHLC scales were: (a) IHLC = 22.1, SD = 3.1, (b) CHLC = 11.8, SD = 2.7 and (c) PHLC = 14.0, SD = 2.3.

Sixteen (57.1%) females and 12 (42.9%) males made up the "pure" powerful others external group. This low internal, low chance and high powerful others health locus of control type (LI LC HP) had a majority of younger students (n=18) and

a greater number of students from lower class circumstances (lower = 12; middle = 11; upper = 5). While 60.7% (n=17) were high health valuers, only 35.7% (n=10) had LP scores that fell within the recommended range. The median score for the LP was 59 (interquartile range = 9). The median score for health as a value was three with an Interquartile range of 5. The MHLC mean scores were: (a) IHLC = 22.8, SD = 3.3, (b) CHLC = 12.0, SD = 2.4, and (c) PHLC = 21.8, SD = 2.9.

The final health locus of control type, the high internal, high chance and low powerful others group (HI HC LP) comprised 20 (71.4%) males and eight (28.6%) females and was the only other group with more older (n=15) than younger (n=13) students. The "pure" chance external group (LI HC LP) was the other group with more older adolescents. The majority of these students came from middle class circumstances (57.1%) with a small number (n=4, 14.3%) belonging to upper class families. Eighteen students were high health valuers and that same number (64.3%) had LP scores that placed them at risk for health. The median LP score was 62; interquartile range of 19. The median score for health as a value was 2 (interquartile range = 5). The mean scores of the MHLC scales were: (a) IHLC = 29.7, SD = 2.1, (b) CHLC = 18.8, SD = 3.0 and (c) PHLC = 14.1, SD = 3.4. Table 16 summarizes the descriptive analysis of the four "pure" locus of control types and the total sample.

Table 16

Comparison of the Total Sample with the Four "Pure" Locus of Control Types on the MHLC Scales, the LP and Health Value Survey

Variables	HI LC LP	LI HC HP	LI HC LP	LI LC HP	Total Sample
IHLC					
Mean	29.5	23.2	22.3	22.8	26.3
Standard Dev.	2.1	2.4	2.6	3.3	4.3
Range	27-35	16-26	14-26	13-26	13-36
CHLC					
Mean	11.9	19.5	19.9	12.0	15.9
Standard Dev.	2.4	3.1	3.4	2.4	4.8
Range	6-15	16-27	16-30	6-15	6-30
PHLC					
Mean	14.0	21.8	14.8	21.8	18.5
Standard Dev.	3.0	2.6	2.8	2.9	5.0
Range	6-18	19-29	7-18	19-29	6-32
LP					
Median	55	57	65	59	59
Interquartile Range	16	18	18	9	16
Scoring Range	37-87	41-143	45-115	43-85	37-143
Health Value					
Median	2	3	4	3	3
Interquartile Range	3	4	4	5	4
Scoring Range	1-7	1-10	1-10	1-10	1-10
Total Number	53	51	47	28	336

Descriptive Analysis of Students Reporting Frequent Depression and/or Anxiety

Twenty-eight students reported being frequently troubled with the emotional problem of anxiety or depression, representing 8.3% of the total sample. Of these 28, 16 students (57.1%) experienced both of these problems as a common occurence. There was an equal distribution of younger (n=14; 50%) and older adolescents but nearly two and a half times more females (n=20; 71.5%) than male students (n=8; 28.5%). The majority of students (n=14, 50%) were of lower class circumstances while the smallest number of adolescents (n=6; 21.5%) came from upper class backgrounds. Table 17 compares the scores for this group with the total sample on the major variables of the study.

When the lifestyle behaviours of these students were examined, the most startling discovery was the poor overall quality of the behaviours. The median score on the LP for this group was 67 which placed them in the hazardous category for health according to Health and Welfare Canada. This score was considerably higher than the total sample score of 59. The students who frequently grappled with emotional concerns reported less physical activity (med.= 13 vs.11), more substance use (med. = 13 vs.12) and greater problems with their personal health (med. = 15 vs.9) than did the total sample. On the remaining lifestyle dimensions of

nutrition, road and water safety and general factors the median scores for the two groups were identical.

Students with emotional concerns placed high value on health indicated by a median of two. It would seem logical to surmise that individuals who commonly suffered from ill-health would realize the importance of good health and place high value on it. The psychological situation of this group was similar in scores to the total group. The median score of eight suggested that, overall, there were factors present in the environment of these students that had a negative influence on preventive health behaviour.

Regarding the health locus of control orientations of students suffering emotional problems an interesting trend was revealed. On each axis of locus of control the mean scores for students in this group were noticeably lower than the scores for the whole sample. Interestingly, it seemed

Table 17

Comparison of Scores of the Study Variables With Students Who Report Frequent Depression/Anxiety and the Total Sample

Major Study Variables	Respondents Experiencing Anxiety / Depression	Total Sample
Lifestyle Profile		
Median	67	59
Interquartile Range	16	16
Scoring Range	49-103	37-143
Health Value		
Median	2	3
Interquartile Range	6	4
Scoring Range	1-10	1-10
Psychological Situation		
Median	8	8
Interquartile Range	1	1
Scoring Range	6-10	6-12
IHLC		
Mean	23.8	26.3
SD	4.3	4.3
Scoring Range	13-30	13-36
CHLC		
Mean	14.8	15.9
SD	3.7	4.8
Scoring Range	8-21	6-30
PHLC		
Mean	17.6	18.5
SD	4.8	5.0
Scoring Range	8-29	6-32

that emotionally troubled adolescents were less convinced that any of the health loci of control were responsible for influencing their health.

Relationships Between Selected Demographic Characteristics and (a) the Health Related Variables, and (b) the Psychological Situation of Adolescents, (c) the Lifestyle Behaviours of Adolescents, (d) the Health Values of Adolescents and (e) the Health Locus of Control Orientations of Adolescents

All statistically significant relationships from this investigation are summarized in Appendix L. A summary is provided at the end of each section to highlight the main findings.

Relationships between selected demographic characteristics and the health related variables.

A statistical analysis of the relationships between selected demographic characteristics and the six health related variables revealed a number of weak but significant relationships and correlations.

Frequency of health contact. This health related variable was found to be significantly related to sex (x^2= 19.5, df = 3, p = .0002, V = .24) suggesting that females visit health professionals more frequently than males. Males were nearly three times more likely not to visit a health professional than females. Average marks on last report card

were also found to be weakly and negatively correlated with health contact (τ = -.03, p = .02), suggesting that as academic standing dropped the number of visits to a health professional increased. Frequency of health contact was not related, with statistical significance to: (a) age, (b) religion, (c) grade, (d) socioeconomic class, (e) birth order and (f) part time employment.

Perceived health status. The variable "rate your health" was significantly related to sex (x^2 = 19.0, df = 2, p = .0001, V = .24) with males perceiving their health status more positively than females. Average marks on last report card was negatively correlated with health status (τ = -.12, p = .001). This correlation indicated that students with better than average marks rated their health higher than students with poor academic standing. There were no significant relationships between perceived health status and (a) age, (b) grade, (c) religion, (d) socioeconomic class, (e) birth order and (f) part time employment.

Adequacy of health information. There were no significant relationships revealed between this health related variable and the eight demographic characteristics. Specifically there were no relationships found with health information and (a) age, (b) sex, (c) grade, (d) religion,

(e) socioeconomic class, (f) birth order, (g) average marks on last report and (b) part time employment.

Parental involvement in family health care. Three weak but significant relationships were discovered between the adolescents perception of their parents' involvement in family health care and birth order (x^2= 12.6, df = 6, p = .05, V = .14), average marks (τ = -.11, p = .0007) and part time employment (x^2= 7.4, df = 2, p = .02, V = .15). These relationships suggested that only children, students with better than C grades and students with no job outside of school perceived more parental involvement and interest with family health care. There were no significant relationships revealed with (a) age, (b) sex, (c) grade, (d) religion and (e) SEC.

Major or chronic illness. Two significant relationships were discovered with this health-related variable. Sex (x^2= 4.2, df = 1, p = .04, ϕ = .11) was found to be significantly related to major illness with more females than males suffering from a major or chronic affliction. Average marks (x^2= 10.1, df = 4, p = .04, V = .17) was also related to illness indicating that students with a major illness had lower marks than students without illness. Major illness was not related, with statistical significance to: (a) age, (b) grade, (c) religion, (d) SEC, (e) birth order and (f) part time employment.

Concern for health. This health related variable was found to be significantly related to sex (x^2= 7.5, df = 2, p = .02, V = .15) which suggested that males were less concerned about their health than females. In fact males were more likely to report that they were "not at all" concerned about their health. Concern for health was also negatively correlated with average marks on last report card (τ = -.07, p = .001). This relationship indicated that adolescents with less than average marks were most likely to report the least concern for health. There were no significant relationships revealed between concern for health and (a) age, (b) grade, (c) SEC, (d) birth order and (e) part time employment.

Summary. The two demographic characteristics most frequently significantly related to the six health-related variables were sex and academic grades. Males visited health professionals less, rated their health better and had less major illness. As well, males were less concerned about their health than females. Students whose academic marks were better than average had fewer visits to a health professional, rated their health better and perceived more parental involvement than adolescents whose marks were below average. In addition those with less than average marks reported less concern for health than other students.

Relationships between selected demographic characteristics and the psychological situation of adolescents. The psychological situation of the adolescents was found to be significantly related to each of the health related variables. Frequency of health contact (x^2= 24.3, df = 3, p = .001, V = .27) was related to psychological situation indicating that students with a positive psychological situation had less contact with health professionals. Perceived health status (x^2= 17.2, df = 2, p = .0002, V = .23) was significantly related to psychological situation which indicated that those with a positive psychological situation rated their health status higher than those with a negative psychological situation. Adequacy of health information (x^2= 44.7, df = 1, p = .0001, Ø = .37) was found to be related to the psychological situation which suggested that those with a positive situation reported sufficient and adequate health information. Parental involvement with family health care was significantly related to the psychological situation of the adolescents. This relationship indicated that students with a positive psychological situation perceived more ongoing parental involvement. There was a significant negative relationship discovered between major illness (x^2= 4.4, df = 1, p = .04, Ø = -.11) and psychological situation which indicated that those with a negative situation had more illness. The final

health related variable, concern for health (x^2= 89.5, df = 2, p = .0001, V = .52) was also significantly related to the psychological situation of the adolescents. This indicated that students with a positive situation were more concerned about their health than those with a negative situation.

The psychological situation was not related to any of the demographic characteristics. Specifically it was not related to: (a) age, (b) sex, (c) grade, (d) religion, (e) socioeconomic class, (f) birth order, (g) academic standing, and (h) part time employment.

Relationships between selected demographic characteristics and the lifestyle behaviours of adolescents. There were eight significant relationships or correlations discovered between the total LP score and selected characteristics. The Lifestyle Profile was found to have significant negative correlations with three of the health-related variables. Perceived health status (τ= -.17, p = .0002), parental involvement in family health care (τ= -.23, p = .04) and concern for health (τ= -.24, p = .0001) were all related to lifestyle behaviour. These correlations suggested that students who demonstrated positive lifestyle

behaviour - that is, scored low on the LP rated their health higher, reported more active parental involvement and had greater concern for their health than students with high scores. Age (τ= .16, p = .01) was also significantly related to lifestyle suggesting that behaviour deteriorates as students get older. Sex (x^2= 9.6, df =3, p = .02, V = .18) was significantly related to lifestyle behaviour indicating that males have better lifestyle practices than females. Socioeconomic status (x^2= 18.5, df = 6, p = .005, V = .18), average marks on last report card (τ= .34, p = .0001) and part time employment (x^2= 18.1, df = 3, p = .0004, V = .23) were also significantly related to scores on the LP. These relationships indicated that students from upper class families, those whose average marks were A's or who did not work at a job outside of school had the healthiest lifestyle practices.

The Lifestyle Profile was not significantly related to: (a) frequency of health contact, (b) adequacy of health information, (c) major or chronic illness, (d) religion and (e) birth order.

Exercise. The lifestyle dimension of exercise was found to be related to four of the demographic variables. Perceived health status (x^2= 32.5, df = 2, p = .0001, V = .31) was significantly related to exercise indicating that active students report a more positive status than other

students. Sex (x^2= 10.5, df = 1, p = .0012, Ø = −.18), socioeconomic class (x^2= 7.2, df = 2, p = .03, V = .15) and part time employment (x^2= 9.3, df = 1, p = .0023, Ø = .17) were also related to exercise. These relationships suggested that males, students with a job outside of school and adolescents from upper class circumstances had better fitness behaviours than their counterparts.

There were no significant relationships found between exercise and (a) academic standing, (b) frequency of health contact, (c) parental involvement in family health care, (d) presence/absence of a major illness, (e) concern for health, (f) age, (g) religion and (h) birth order.

Nutrition. There were five significant relationships discovered between nutrition and the demographic characteristics. Perceived health status (x^2= 25.3, df = 2, p = .0001, V = .27) and major illness (x^2= 6.9, df = 1, p = .008, Ø = −.14) were the two health related variables related to nutrition. These relationships indicated that students with good nutritional habits rated their health higher while adolescents who had a major illness had poor nutritional practices. Sex (x^2= 7.8, df = 1, p = .005, Ø = −.15) was negatively related to nutrition indicating that males had better nutritional health than females. Socioeconomic status (x^2= 6.6, df = 2, p = .04, V = .17) was also related to nutrition which suggested that students from upper class

circumstances had the best nutritional habits. Average marks on last report card (x^2= 22.3, df = 4, p = .0002, V = .26) was the final significant relationship found with nutrition. This relationship suggested that students with less than average marks have the poorest nutritional behaviour.

Nutrition was found to have no significant relationship with (a) frequency of health contact, (b) adequacy of health information, (c) parental involvement in family health care, (d) concern for health, (e) age, (f) religion, (g) birth order or (h) part time employment.

Substance use. For the combined category of substance use, there were three significant relationships discovered with the demographic characteristics. Age (x^2= 32.6, df = 4, p = .001, V = .27), academic standing (x^2= 36.2, df = 4, p = .0001, V = .33) and part time employment (x^2= 28.2, df = 1, p = .0001, V = .29) were related to substance use. These relationships indicated that younger students, students with A grades or students with no job outside of school had significantly less substance use than other students. There were no relationships revealed between substance use and (a) frequency of health contact, (b) perceived health status, (c) adequacy of health information, (d) parental involvement, (e) major illness, (f) concern for health, (g) sex, (h) religion, (i) socioeconomic class and (j) birth order.

When the demographic variables were analyzed in relation to the separate components, alcohol, drugs and tobacco, a number of significant relationships were revealed. Concern for health was found to have a negative correlation with alcohol (γ = -.09, p = .03), drugs (γ = -.15, p = .005) and tobacco (γ = -.13, p = .01) which indicated that students who reported no concern for health had the greatest amount of substance use. Sex was found to be related to alcohol (x^2 = 20.8, df = 8, p = .008, V = .25) and tobacco (x^2 = 21.6, df = 5, p = .0006, V = .25) with males having riskier behaviours in these two areas. Religion was also found to be significantly related to alcohol (x^2 = 40.9, df = 24, p = .02, V = .20) and to drugs (x^2 = 24.5, df = 9, p = .004, V = .16) with Catholics reporting the highest, therefore unhealthiest scores.

Personal health. There were five significant relationships found between the subscale personal health and the demographic characteristics. Three health-related variables, frequency of health contact (x^2 = 13.1, df = 1, p = .004, V = .20), perceived health status (x^2 = 16.5, df = 2, p = .003, V = .22) and major illness (x^2 = 3.9, df = 1, p = .05, ϕ = -.11) were related to personal health. These relationships suggested that good personal health habits were most often found in students who visited health professionals

infrequently, rated their health high or were not ill with a major illness. Sex (x^2= 121.4, df = 1, p = .001, Ø = -.30) and part time employment (x^2= 6.4, df = 1, p = .01, Ø = .14) were also related to that dimension of personal health. This suggested that males or students who worked part time had better personal health than their counterparts.

Personal health behaviour was not found to have significance with (a) adequacy of health information, (b) parental involvement, (c) concern for health, (d) age, (e) religion, (f) socioeconomic class, (g) birth order and (h) average marks on last report card.

Road and water safety. There were four significant relationships found among the demographic characteristics and the road and water safety behaviours of adolescents. Concern for health (x^2= 7.4, df = 2, p = .02, V = .15) was the only health-related variable that was significant with this type of behaviour and it suggested that students who reported no concern for health had the riskiest road and water behaviours. Sex (x^2= 15.1, df = 1, p = .001, Ø = .21), academic standing (x^2= 23.3, df = 4, p = .0001, V = .26) and part time employment were also related to road and water safety scores. These relationships indicated that males, students with less than average grades or students with part

time work have the highest score - i.e. the unhealthiest behaviours in this area of lifestyle.

There were no significant relationships discovered with (a) frequency of health contact, (b) perceived health status, (c) adequacy of health information, (d) parental involvement, (e) major illness, (f) age, (g) religion, (h) socioeconomic class and (i) birth order.

General lifestyle factors. There were five significant relationships revealed between the scores on this miscellaneous category of lifestyle behaviours and the demographic characteristics. Perceived health status (x^2= 7.8, df = 2, p = .02, V = .15) and parental involvement in family health care (x^2= 8.0, df = 2, p = .02, V = .24) were significantly related to general lifestyle factors indicating that students with low scores in this category rate their health higher and perceive more active parental influence than high-scoring students. Sex (x^2= 3.8, df = 1, p = .05, ϕ = .11) was significantly related to this general category suggesting that females exhibit better behaviour than males. Birth order (x^2= 8.0, df = 3, p = .05, V = .15) and average marks on last report (x^2= 12.2, df = 4, p = .02, V = .19) were also related to this category which suggested that youngest and oldest children or students with better that average grades demonstrated the best behaviour.

This category of general lifestyle practices was not significantly related to (a) frequency of health contact, (b) adequacy of health information, (c) major illness, (d) concern for health, (e) age, (f) religion, (g) socioeconomic class and (h) part time employment.

Summary. Four demographic characteristics were almost consistently related to each of the six components of the Lifestyle Profile and the overall Profile itself. Perceived health status had significance with all but the categories of substance use and road and water safety and suggested that students who report a poor health status exhibit poor behaviours in all lifestyle areas but substance use and road and water safety. Sex was related to all the lifestyle dimensions but substance use and indicated that males generally demonstrate better behaviours than females especially in the areas of exercise, nutrition and personal health. Part time employment was related to the total LP and to four of the subscales, exercise, substance use, personal health, and road and water safety. Students with a part time job generally exhibited more risky behaviours than unemployed students but reported better fitness behaviours and better personal health. Academic standing was also related consistently to lifestyle behaviours and in the areas of nutrition, substance use, road and water safety and general factors behaviour improved as marks improved.

Relationships between selected demographic characteristics and the health value of adolescents. A statistical analysis of the relationships between selected demographic characteristics and health value revealed five significant relationships. There was a significant relationship between concern for health and health value (x^2= 9.9, df = 2, p = .007, V = .17) which indicated that students who were most concerned about their health were the high health valuers. Sex (x^2= 10.5, df = 1, p = .001, ϕ = -.18) was related to health value, suggesting that females value health more highly than males. Religion (x^2= 12.3, df = 3, p = .007, V = .19) was significantly related to health value which indicated that Catholics and students who report no religious affiliation value health less highly than Protestants. Socioeconomic class (x^2= 6.5, df = 2, p = .04, V = .14) was related to health value and indicated that students from middle class circumstances valued health most highly. Birth order (x^2= 11.1, df = 3, p = .01, V =.19) was also significantly related to health value and this relationship suggested that oldest children value health less highly than other adolescents.

Health value was not found to be related to (a) frequency of health contact, (b) perceived health status, (c) adequacy of health information, (d) parental involvement, (e) major illness, (f) age, (g) academic standing and (h) part time employment.

Relationships between selected demographic characteristics and the health locus of control orientations of adolescents. Health locus of control and the demographic characteristics were analyzed in two ways. First, the three subscales, IHLC, PHLC and CHLC were analyzed in relation to the demographics and, then, the eight locus of control "types" were analyzed in relation to same variables. This two level analysis is suggested by Wallston and Wallston (personal communication, July, 1984) to help determine the existence and validity of their proposed typology.

MHLC subscales. Scores on the IHLC were found to be significantly related to five of the demographic characteristics. Perceived health status (τ = .12, p = .007) correlated positively with internal orientation indicating that the stronger the beliefs in internal reinforcement for health the more positive was perceived health status. Major illness (x^2 = 114, df = 3, p = .009, V = .18) was significantly related to internal orientation which suggested that students suffering from a major illness had less of an internal orientation than students without illness. Concern for health (τ = .17, p. = .003) was also related to internal locus of control. This correlation suggested that students who were very concerned about health had strong beliefs in internal reinforcement. In addition, age (r = -0.13, p = .0001) and academic standing (τ = -.08, p = .004) correlated

negatively with internal orientation which indicated that younger students and students with average or better marks have greater internal orientations.

There were no significant relationships discovered between internal orientation and (a) frequency of health contact, (b) adequacy of health information, (c) parental involvement, (d) sex, (e) religion, (f) socioeconomic class, (g) birth order, and (h) part time employment.

CHLC scores were analyzed in relation to the demographic characteristics and three significant relationships were revealed. Sex (x^2= 10.9, df = 4, p = .03, V = .18) was related to external chance orientation which indicated that males report stronger beliefs in chance than females. Average marks on last report card (τ = .18, p = .009) was significantly related to a chance or fate orientation with students who reported less than average marks having the strongest beliefs in chance. External chance orientation was also related to part time employment (x^2= 10.2, df = 4, p = .04, V = .17) indicating that adolescents holding jobs had less belief in chance as reinforcement than unemployed students.

External chance health locus of control was not related to (a) frequency of health contact, (b) perceived health status, (c) adequacy of health information, (d) parental involvement, (e) major illness, (f) concern for health, (g)

age, (h) religion, (i) socioeconomic class and (j) birth order.

An external powerful others health locus of control orientation was significantly correlated with concern for health (τ = .19, p = .0003) the only demographic characteristic to which it was related. This correlation suggested that students who were "very much" concerned about their health had strong beliefs in powerful others. PHLC was not related to (a) frequency of health contact, (b) perceived health status, (c) adequacy of health information, (d) parental involvement, (e) major illness, (f) age, (g) sex, (h) religion, (i) socioeconomic class, (j) birth order, (k) academic standing and (l) part time employment.

Locus of control "types". When the demographic characteristics were analyzed in relation to the eight locus of control types three significant relationships were discovered. Concern for health (x^2= 41.1, df = 14, p = .0002. V = .25) was related to type of health locus of control orientation which indicated that students who scored above the median on CHLC were less concerned about their health. Religion (x^2= 33.8, df = 21, p = .04, V = .18) was related to the type of locus of control orientation with Protestants having more internal scores than others. Average marks on last report card (x^2= 44.8, df = 28, p = .02, V = .18) was the third significant relationship discovered with the locus

of control types. This relationship suggested that students with A grades were most likely to be HI LC LP ("pure" internal) while students with less than average grades were most likely "pure" chance (LI HC LP).

There were no significant relationships revealed between the eight locus of control types and (a) frequency of health contact, (b) perceived health status, (c) adequacy of health information, (d) parental involvement, (e) major illness, (f) age, (g) sex, (h) socioeconomic class, (i) birth order, and (j) part time employment.

Summary. Internal health locus of control and external chance health locus of control orientations were related to a number of demographic characteristics. Beliefs in internal control were related to health status, major illness, concern for health, age and academic standing. Greater internal reinforcement was found with younger students, students with the highest health rating, adolescents with no major illness, students with great concern for health and/or students with better than average marks. An external chance reinforcement for health was strongest with male adolescents, students with less than average grades and students who were not employed outside school.

Relationships Between the Lifestyle Behaviours of Adolescents and (a) the Psychological Situation of Adolescents, (b) the Health Value of Adolescents and (c) the Health Locus of Control Orientation of Adolescents

Relationships between the lifestyle behaviours of adolescents and the psychological situation of adolescents. When the psychological situation was analyzed in relation to lifestyle behaviours, six significant relationships were discovered. Exercise (x^2= 6.8, df = 1, p = .009, Ø = .14) and nutrition (x^2= 4.5, df = 1, p = .03, Ø = .12) found significance with psychological situation indicating that students with a positive situation were more active and displayed better nutritional behaviour. Drug behaviour (x^2= 10.3, df = 3, p = .02, Ø = .21) was related to the psychological situation with students holding a negative situation displaying more drug use than students with a positive situation. Personal health (x^2= 9.9, df = 1, p = .002, Ø = .17), general factors (x^2= 4.8, df = 1, p = .03, Ø = .12) and the overall LP (x^2= 36.3, df = 1, p = .0001, V = .33) were also related to the psychological situation of adolescents. These relationships indicated that students with a positive situation had better overall behaviour and better personal health and general lifestyle behaviours. The psychological situation was not related to substance use or road and water safety.

Relationships between the lifestyle behaviours and the health value of adolescents. Two significant relationships were discovered between health value and lifestyle. Exercise (x^2= 4.5, df = 1, p = .03, Ø = .12) and nutrition (x^2= 5.3, df = 1, p = .01, Ø = .13) were related to health value which suggested that students who valued health highly have better behaviours in these two lifestyle dimensions. There were no significant relationships discovered with (a) substance use, (b) personal health, (c) road and water safety, (d) general factors and (e) the total LP.

Relationships between the lifestyle behaviours and the health locus of control orientations of adolescents. Locus of control was analyzed with lifestyle behaviour in two ways (K. Wallston, personal communication, July, 1984). Scores on the MHLC subscales and the eight locus of control types were examined in relation to lifestyle scores.

MHLC subscales. Beliefs in internal reinforcement for health were negatively correlated with overall lifestyle scores (τ =-.19, p= .0004). This correlation indicated that as strength in internal beliefs increased, scores on the LP decreased, that is, behaviour improved. In addition beliefs in internal reinforcement were weakly and negatively correlated with alcohol (τ = -.02, p = .0001), drugs (τ = -.08, p = .01) and tobacco (τ -.03, p = .004). This suggested that as scores in these categories increased (behaviour became

riskier) strength in internal beliefs decreased. Road and water safety was also significantly related to beliefs in internal reinforcement for health (x^2 = 8.9, df = 3, p = .03, V = .16) which suggested that students with healthy behaviour in this category were more internal than students with poor road and water behaviour.

Strength of internal beliefs was not related to (a) exercise, (b) nutrition, (c) substance use, (d) personal health nor (e) general lifestyle factors.

Belief in external chance reinforcement for health was found to have three significant relationships with lifestyle. Overall lifestyle scores (τ = .13, p = .006) were correlated positively with chance, suggesting that as strength of belief in chance increased, LP scores also increased, that is health behaviour deteriorated. Substance use (x^2 = 10.3, df = 4, p = .04, V = .18) and general lifestyle factors (x^2 = 13.6, df = 4, p = .009, V = .20) were also significantly related to beliefs in chance and indicated that adolescents who demonstrated unhealthy behaviours in these areas of lifestyle had stronger beliefs in chance as reinforcement for health. Strength of belief in chance was not related to (a) exercise, (b) nutrition, (c) personal health, and (d) road and water safety.

Scores on PHLC had significant relationships with total Lifestyle Profile (τ = -.11, p = .02) and the category of

substance use (x^2= 13.5, df = 5, p = .02, V = .20). These two relationships indicated that belief in external powerful others reinforcement increased as lifestyle behaviours improved and as substance use decreased. Powerful others health locus of control had no relationship with (a) exercise, (b) nutrition, (c) personal health, (d) road and water safety, nor (e) general lifestyle factors.

Eight health locus of control types. When the eight types were analyzed in relation to lifestyle two significant relationships were discovered. Overall lifestyle scores (x^2= 37.6, df = 21, p = .01, V = .19) were significantly related to locus of control type. This suggested that students who scored above the median on CHLC and especially those who belonged to the pure chance group had the highest LP scores. Students with high internal scores and high powerful other scores had the lowest LP scores. Substance use (x^2= 16.8, df = 7, p = .02, V = .22) was also related to locus of control type. Students who scored above the median on the CHLC subscale demonstrated the greatest amount of substance use. Locus of control type was not related to (a) exercise, (b) nutrition, (c) personal health, (d) road and water safety and (e) general lifestyle factors.

Summary. The total lifestyle scores of adolescents in this sample were significantly related to a number of the major variables of the study. Scores on the LP were

significantly better when the adolescents held a positive psychological situation, had strong belief in internal reinforcement for health or powerful others reinforcement for health and little belief in chance as a reinforcement for health. Health value was not related to total LP scores.

Relationships Between the Health Locus of Control Orientations, Themselves, and Between the Health Locus of Control Orientations and (a) the Psychological Situation of Adolescents and (b) the Health Value of Adolescents

Relationships between the MHLC subscales, themselves. Intercorrelations of the MHLC scores revealed two significant correlations which are presented in Table 18. The intercorrelations of the subscales are similar to those reported by Wallston and Walston (1978) and Brown et al. (1983) and fall into the expected locus of control pattern except in one major respect. In this sample of adolescents there was no negative correlation between IHLC and PHLC ($r = .090$, $p > .05$) similar to the relationship between IHLC and CHLC ($r = -.14$, $p = .008$). According to the locus of control framework this negative correlation is expected between IHLC and both dimensions of externality, PHLC and CHLC. The expected positive correlation between the two external subscales PHLC and CHLC ($r= .16$, $p = .004$) was found.

Table 18

Correlations Between the MHLC Subscales

Subscales	IHLC	CHLC	PHLC
Internal Health Locus of Control	-	r=-.14*	r=.09
Chance Health Locus of Control	-	-	r=.16*
Powerful Others Health Locus of Control	-	-	-

* $p < .05$

Relationships between health locus of control orientations and the psychological situation of adolescents. The psychological situation was found to be significantly related to strength of internal beliefs ($x^2 = 8.7$, df = 3, p = .03, V = .16) and strength of beliefs in powerful others ($x^2 = 11.6$, df = 5, p = .04, V = .18). These relationships indicated that students with positive psychological situations were more internal while students with negative psychological situations had stronger beliefs in powerful others. Psychological situation was not significant with (a) beliefs in chance or (b) locus of control type.

Relationships between health locus of control orientations and the health value of adolescents. Health value was analyzed in relation to the MHLC subscales and the eight locus of control types. Health value was signficantly related to beliefs in internal control (r = .07, p = .04)

which indicated that students who value health highly have stronger beliefs in internal reinforcement for health. There were no relationships discovered between health value and (a) CHLC, (b) PHLC or (c) locus of control type.

Relationship Between the Health Value and the Psychological Situation of Adolescents.

There was no relationship discovered between health value and the psychological situation of adolescents.

Health Problems of Young as Perceived by the Adolescent Sample

Subjects were asked to report on what they considered to be the major health problems of young people to determine if adolescents perceived lifestyle factors as impacting on the well being of today's youth. Student responses were content analyzed and coded into discrete categories.

The health problems cited by adolescents as affecting teenagers included (a) drugs, (b) alcohol, (c) tobacco, (d) nutrition, (e) exercise, (f) social disease and (g) mental health (described as "anxiety", "depression" or "lack of interest). Table 19 describes the number of times the problem was identified and the percentage of adolescents who cited the problem.

Table 19

Frequency of Adolescent Responses to the Question Concerning the Health Problems of Youth

Problem	Frequency	%
Drugs	157	46.7%
Alcohol	151	44.9%
Tobacco	124	36.9%
Nutrition	74	22.0%
Exercise	63	19.0%
Social Disease	32	9.5%
Mental Health	25	7.4%

Note: N = 336. The frequency refers to the number of times the problem was identified. The % refers to the number of students.

Summary

Results of the study indicated that poor lifestyle practices were demonstrated by over half the adolescent sample. Males had significantly better behaviours than females and younger students were more likely to engage in health promoting practices than older students. Adolescents with a positive psychological situation and strong beliefs in internal health locus of control reported a higher quality

lifestyle. Students with a part time job, poor health status, minimal concern for health, and an external chance health locus of control orientation were involved in significantly more risky behaviours than other adolescents.

Most adolescents valued health highly. Concern for health was related to health value indicating that when there was little concern for health the value placed on health was low. Health value was not related to lifestyle behaviours but was correlated with beliefs in internal health locus of control.

Mean scores on the MHLC scale revealed that the adolescents scored highest on items that reflected an internal reinforcement for health and lowest on items that reflected an external chance reinforcement. Intercorrelations between the subscales of the MHLC uncovered a negative correlation between IHLC and CHLC and a positive relationship with CHLC and PHLC. The expected negative relationship between IHLC and PHLC did not manifest itself in this investigation. The lack of this relationship highlighted a discrepancy with the theoretical framework.

Adolescents reported a variety of health problems that were of concern for today's youth. These problems were lifestyle related and included drugs, alcohol, tobacco, nutrition, exercise, social diseases and mental health.

To conclude, the adolescents in this sample reported awareness of the impact of lifestyle behaviours on health, valued health highly but generally engaged in detrimental lifestyle practices. However, those students with strong internal beliefs, a positive psychological situation and little regard for fate and luck as reinforcement for health exhibited behaviours that enhanced well being.

CHAPTER IV

THE DISCUSSION

The results of the study will be discussed in relation to the purposes and theoretical framework of the investigation. The lifestyle behaviours of adolescents and their relationship to the variables of the study will be examined in terms of their relevance to the role and function of the psychiatric-mental health nurse.

Mental health and well being are, in part, actuated by an individual's lifestyle behaviour (Plath & Belzer, 1985; Randall, 1981). With the increasing acceptance of the interrelationship between mind, body and spirit the need to promote healthy lifestyle practices among the population takes on added significance (Pelletier, 1979, p. 8). This is particularly true for adolescents as it is at this stage in their development that they experiment with and settle into, personal lifestyle practices. The patterns of health behaviour that they ensconce often times follow them throughout their lives (Perry & Murray, 1982). Facilitation of a client's positive lifestyle and counselling for lifestyle change are, therefore, vital components of the psychiatric-mental health nurse's repertoire of interventions (Standards of Psychiatric and Mental Health Nursing Practice, ANA, 1982). In addition, assessment of an individual's

lifestyle practices provides important data about mental health which are necessary for the implementation of early nursing preventive measures.

When working with individuals to improve their lifestyle, factors which influence their decisions about particular kinds of health behaviour must be identified and evaluated. Three factors believed to be instrumental in determining the outcome of lifestyle behaviours include: (a) the value placed on health, (b) the individual's health locus of control orientation, and (c) the psychological situation of the individual (Rotter, 1954, p. 27). The adolescents in this study have provided understanding of the relationship between these factors and the quality of lifestyle displayed. Although the lifestyle behaviours of the students indicated that improvement was warranted, maintaining an internal health locus of control orientation pointed to more positive lifestyle practices. Overall, the results of this investigation corroborated with the findings of other studies (Bollin & Hart, 1982; Brown, 1983, Lamontagne, 1983) that examined health locus of control and health preventive behaviour except in one major respect. Students in this investigation could not be readily distinguished on the basis of behaviour when their health locus of control orientations were moderately internal or governed by powerful others. It would seem that for this sample of teenagers, at least,

strong beliefs about the influence of powerful others on health were related to lifestyle in some of the same ways that internal beliefs were related to lifestyle.

Adolescent Lifestyle Behaviours

The study's findings are in line with other studies (Carey & Rogers, 1973; Tamir et al, 1982) that declare lifestyle a health problem for a large number of today's youth. Over half the students reported engaging in lifestyle practices that were detrimental to health while a very small proportion exhibited health promoting behaviours. Although 76 students claimed to receive inadequate health information, that fact alone is not sufficient to account for the magnitude of the problem.

The quality of lifestyle for male students was significantly better overall than for female students. Males excelled in three areas: (a) fitness, (b) nutrition and (c) personal health. This finding was consistent with other studies that have found a positive relationship between physical fitness and mental health (Halfman & Hojacki, 1981; Sachs, 1981) and between nutritional behaviour and mental health (Schafer, 1979). In addition, males had significantly less chronic illness, fewer visits to a health professional and perceived their health status better than did females. Adolescent girls displayed healthier behaviour regarding road

and water safety and substance use. This finding also supported the literature as males have been found to engage in more substance use (Boyd, 1977, p. 297; Daniels, 1977, p. 194) and involve themselves in a greater number of motor vehicle mishaps (Henderson, Krupinski & Stoller, 1971, p. 198). Worthwhile to note was the magnitude of substance use among this sample of adolescents. Over one-third of the students were current smokers and that same proportion were involved in improper drug use; slightly under one-third drank more than seven drinks of alcohol weekly. Mitchell and Smith (1984, p. 184) and Daniels (1977, p. 191) reported similar findings with regard to the degree of substance use among other samples of teenagers. These problems are touted as being among the major concerns of the mental health nurse working in the community.

Younger adolescents had significantly lower scores on the LP than other students and scored better in three areas: (a) substance use, (b) road and water safety and (c) general lifestyle factors. Students from upper class backgrounds were also significantly more apt to display positive lifestyle behaviours except in the area of personal or mental health. Other studies (Gordon & McAlister, 1982, p. 204-5) support these findings which indicate that adolescent health behaviour deteriorates with increasing age and decreasing socioeconomic status. In fact, adolescents, themselves, have

identified adequate physical space and necessities of living as an important aspect of health and well being (Berger, 1978; Blackbourn & Summerlin, 1974). It can be presumed that such needs may not be as well met in low socioeconomic conditions which, in turn, would impact lifestyle practices. Academic standing was also significantly related to the quality of lifestyle behaviours reported. Students with average marks less than C were more often engaged in hazardous behaviour while students with A grades were more inclined to demonstrate health promoting behaviours particularly in the area of nutrition, substance use, road and water safety and general lifestyle factors. Gordon and McAlister (1982, p. 206) reported similar adolescent behaviours. Interestingly, students employed on a part time basis had a poorer quality lifestyle than unemployed students. Working students did excel, however, in two dimensions of the LP. These adolescents demonstrated a significantly more active lifestyle and more positive mental health leading to speculation that exercise and employment were positively related to mental health and emotional well being.

When the lifestyle dimension of personal health was examined to identify the extent of anxiety and depression in the sample several noteworthy trends were revealed. Personal health was associated with the frequency of health contact;

students reporting high scores in this area had more visits with a health professional. As personal health improved the number of visits decreased. Nearly one-tenth of the sample reported experiencing frequent emotional problems. This number was consistent with figures reported by Statistics Canada (1981) which indicated that between 10% and 30% of the population have some form of mental/emotional disorder. Females were over twice as likely to experience frequent occurrences of anxiety or depression and students from lower class circumstances also suffered from emotional problems in greater numbers than upper or middle class students. For students with poor mental health quality of lifestyle was discovered to be very low. The median LP score indicated that their lifestyle practices were detrimental to health. In addition to poor personal health, the emotionally troubled teenagers were less physically active and involved in more substance use than their counterparts. These findings gave support for the relationship between mental health and lifestyle.

It is important to remember, however, that the adolescents who comprised this sample were not representative of all adolescents 15 to 19 years of age. The sample from one school was not random and only those students who received parental permission were able to participate. Eighty percent of the student body received permission and

slightly more than half completed usable questionnaires. Undoubtedly the sample was somewhat biased and the results must be examined in that light. Nevertheless the findings have provided valuable information on the nature of adolescent lifestyle behaviours and some factors which influence these behaviours. As Daniels (1977, p. 5) emphasizes, adolescence in general has been a neglected area of study in the health care system with more investigations of all kinds being needed.

Relevance of Lifestyle Behaviours to Psychiatric-Mental Health Nursing

Teenagers in this study consistently engaged in lifestyle behaviour that placed them at risk for physical and emotional well being. Adolescent girls in particular were identified as a target group requiring lifestyle changes to improve health status. Female students were prone to lack of physical activity, poor eating habits and inadequate personal health. Although their use of substances was less than males, statistics (Gordon & McAlister, 1982, p. 204) indicate that this is changing as every year more young women become regular tobacco smokers, alcohol consumers and drug users.

The impact of substance abuse on the mental health care system is widely documented in the recent literature. The havoc that such abuse instills in the individual, the family and the community does not go undetected. The number of

students both male and female involved and the magnitude of the behaviour reported in the study underscores the need for prevention and intervention by the mental health team. The psychiatric-mental health nurse has a vital role to play in the education and counselling of young people toward more appropriate and health sustaining patterns of behaviour. This applies equally as well in the areas of physical fitness and nutritional health. With the body of knowledge accumulating about the relationship between mental health, exercise and nutrition, important nursing interventions are identified and established. Considering the degeneration of health behaviour as age increased in this investigation, the proper timing of lifestyle counselling also requires attention by the nurse. Early intervention appears necessary to prepare the individual for tough decision making in his/her near future.

Noteworthy were the number of adolescents who reported regular anxiety, depression and insufficient sleep. Over half the sample experienced depression and nearly half wrestled with anxiety and lack of adequate sleep indicating that many adolescents have ineffective coping mechanisms to deal with these phenomena. For students who were grappling with fluctuating emotional health, other areas of lifestyle presented problems as well. There was greater involvement with substance use, less physical activity and overall, a

poorer quality of health behaviour. From a mental health nursing perspective, these findings clearly mandate the use of a holistic approach when giving emotional care. Not to identify and intervene in all the problem areas manifested by a client severely limits the effectiveness of the nursing approach.

Health Locus of Control Orientations

The health locus of control orientations of this adolescent sample fell within the expected pattern when compared with established MHLC normative scores (Pill & Scott, 1981; K. Wallston, personal communication, July, 1984). In general, adolescents were most strongly oriented toward internal reinforcement for health, followed by belief in powerful others and ending with belief in chance or fate. Table 20 compares the mean MHLC scores among the adolescents in this sample with the scores of other samples of subjects.

Table 20

Comparison of Adolescents' Mean Scores on MHLC with Mean Scores of Other Types of Subjects

Types of Subjects	Number	IHLC Mean	CHLC Mean	PHLC
Adolescents	336	26.3	15.9	18.5
College Students	749	26.7	16.7	17.9
Chronic Patients	609	25.8	17.6	22.5
Persons Engaged in Preventive Health Behaviour	720	27.4	15.5	18.5

MHLC Subscales

IHLC. Males were more strongly oriented towards internal health locus of control connoting congruence with the theoretical framework of the study - i.e. their lifestyle behaviours were more positive than females (Wallston & Wallston, 1978). Younger adolescents were significantly more internal than the older students. This relationship was somewhat puzzling as one would expect that a sense of self-responsibility would normally increase with age. On the other hand, younger adolescents may have an inflated sense of personal powerfulness due, in part, to their inexperience with independent living. This relationship did, however, concur with the framework of the study as younger students had better lifestyle behaviours than older ones. Therefore, they were expected to be more internally controlled. Students who received A grades were significantly more internal than students with lower grades. It seems reasonable that adolescents who worked to attain a high academic standing have developed a sense of self-strength and independence which could easily permeate their perspectives on health.

CHLC. Males had significantly stronger beliefs in chance than did females. This finding differed from the results of other studies (Lamontagne, 1983; Wallston, Wallston & DeVillis, 1978) in which no sex differences on the MHLC

scales were reported. Due to the lack of studies involving locus of control and adolescents, it is difficult to generalize about the results, however, this reported sex difference may be a unique characteristic of adolescents. Average academic grades of less than C were also significantly associated with strong beliefs in chance. Students with poor academic standing may have had feelings of powerlessness and impotence that colored their beliefs about their personal capabilities in other areas of their lives as well. Finally, adolescents who were employed in a job outside of school had significantly weaker beliefs about the impact of fate on health than did the unemployed students. It would seem that students who acquired and maintained part time employment had a firm sense of mastery.

PHLC. Although females had stronger beliefs in powerful others as reinforcement for health, this subscale was not significantly related to any of the demographic variables. This lack of association was supported in the literature (Brown et al., 1983).

Health Locus of Control and Lifestyle

IHLC. The expected association was revealed between strength of beliefs in internal reinforcement and quality of lifestyle. This finding has support in the literature (Brown et al., 1983; Sonstroem & Walker, 1973), but must be acknowledged to be open to some debate as many other studies

have failed to uncover such a relationship (Wallston & Wallston, 1982, p. 77). In this investigation, adolescents with low scores on the LP, that is, those who demonstrated positive lifestyles, had strong internal control. A lessening on an internal orientation was significantly associated with increased alcohol, drug and tobacco use. Students who used these substances excessively had weak beliefs in internal locus of control. In addition, students who reported safe road and water behaviour were significantly more internally controlled than those with risky behaviour in this lifestyle dimension. It may be that adolescents who engage in problem behaviours in the areas of substances and motorized vehicles need special assistance in developing more self-responsibility and increasing their ability to think in the long term.

CHLC. Again the expected relationship was found between beliefs in chance as reinforcement and the nature of lifestyle behaviour. This relationship supported the theoretical framework of the study and is substantiated in the literature (Strickland, 1978). In this investigation risky lifestyle behaviour was characterized by a strong external chance health locus of control. Those students who exhibited the most hazardous behaviours tended to have more clearly established beliefs in the power and effect of luck and fate on the outcome of their health. They perceived a

greater outside influence on their lives which was out of their control. Students who indulged in excessive substance use were not only weakly oriented internally but were also strongly oriented toward chance and fate as reinforcement for health. Unhealthy behaviours in the general lifestyle category such as extended television viewing, limited knowledge of first aid and smoking in bed were also characterized by strong beliefs in chance. It is possible that these teenagers with few absorbing interests and excessive free time developed a reduced sense of control over the environment.

PHLC. Students holding strong beliefs about the effect of powerful others on health engaged in positive lifestyle behaviours. Contrary to the theoretical framework of the study, adolescents with strong beliefs in the external influence of powerful others on health had quality lifestyles similar to those with internal orientations. As beliefs increased, behaviour improved. This finding was not supported in the literature although the researched relationship between powerful others health locus of control and health behaviour is ambiguous and confusing. Hallal (1982) reported low beliefs in powerful others to be associated with preventive health behaviour. Brown et al (1983) also reported low PHLC scores to be related to

increased health promotion activity. Rosenblum et al (1981), however, reported in their study of two groups of mothers of preschoolers that there was no difference in the PHLC scores of the mothers who had their children immunized and mothers who had not. Additionally, in a study (Gierszewski, 1983) designed to examine locus of control and weight loss, beliefs in powerful others were related to increased weight loss. It seemed from the studies reviewed that there was no clear expectation for the scoring direction of the PHLC scale and that this variable in particular was dependent upon the situation in which it occurred. Considering, then, that adolescents are still very much under the control of parents and teachers while attending school, it is not unreasonable for them to hold two seemingly divergent views with little incongruency.

The Eight Locus of Control Types

No additional information was gleaned when the adolescents were classified according to locus of control type. Overall lifestyle was related to locus of control type in the same direction as described above. Adolescents in the "pure" chance group and those who scored above the median on the CHLC scale had the highest LP scores, that is, reported the most detrimental behaviours. Students who scored above the medians on the IHLC and PHLC scales had significantly

better behaviours. The most substance use was reported by students with the strongest beliefs in chance as the locus of control but this was the only aspect of lifestyle that was related to locus of control type. Although both the significant relationships supported the social learning theory framework of this study, the difference between the number of significant relationships when the data was analyzed two different ways is worthy of note. It may be that a more realistic interpretation of the impact of locus of control on health behaviour lies somewhere between those two extremes.

Relevance of Health Locus of Control to Psychiatric-Mental Health Nursing

The most obvious finding in this study was the nature of lifestyle behaviour when the adolescent was a firm believer in fate and chance as determinants of health. This perspective was a dangerous one to hold as it was coupled with lifestyle practices that posed a serious threat to health and well being. Students with a chance health locus of control were characterized by impulsive, risky, unthinking behaviour that made them an at-risk target group for suicide and attempted suicide (Haber, Leach, Shudy & Sideleau, 1982, p. 579).

Much of what occurs in mental health nursing is designed to encourage individuals to become more cognizant of their own responsibility for what occurs to them, in other words, to promote an increasing internality (Muhlenkamp & Nelson, 1981). The students in this study demonstrated the association between high quality lifestyle and internal beliefs. As well, internal beliefs were more often found when anxiety and depression were minimal. This study,then, gave support for the worth of a major tenet in psychiatric-mental health nursing, the promotion of self-responsibility.

A final important consideration that locus of control has for the mental health nurse is that of approach (Arakelian, 1980). A client's expectancies often influence the effectiveness of nursing interventions. To maximize the efficacy of his/her approach the nurse should assess the client's locus of control to help prepare for the planning stage of the nursing process.

The Psychological Situation

An overwhelming majority of students had a positive psychological situation which meant that there were situational variables present that facilitated positive health behaviour choices. Adolescents with a positive psychological situation had few visits to a health professional, perceived their health status as average or better, were exposed to adequate health information, had no

major illness, perceived their parents as involved in promoting the health of the family and were concerned about their health. The findings of the study revealed that an individual's psychological situation was not significantly associated with any demographic characteristics. Noteworthy, however, is the caution necessary in the interpretation of these results. The dearth of studies that examine psychological situation, the lack of a tested instrument to measure the variable and the unrefinement of the measure used in this investigation contribute considerably to the tenuousness of the findings (Lewis et al., 1978).

Psychological Situation and Lifestyle

Overall, there was a significant trend for adolescents with a positive psychological situation to engage in more health promoting behaviours. This relationship gave support for the study's framework as health behaviours was postulated to increase when the individual experienced situation specific factors that supported healthy behaviour choices (Rotter, 1954, p. 17). Students with a favorable psychological situation had better nutritional habits, were more physically active and demonstrated more favorable behaviours in the general lifestyle category. In addition, a positive psychological situation was strongly related to satisfying personal and mental health. Students who reported a negative psychological situation had significantly more

distress in this area. As well, a negative psychological situation was related to excessive drug use. Adolescents involved in improper drug use tended to be characterized by a negative psychological situation.

Psychological Situation and Health Locus of Control

Individuals with a positive psychological situation had significantly stronger beliefs in their personal ability to affect health. It appeared, for this sample of adolescents at least, that favorable situational variables were coupled with the belief in personal power to actively influence health. Students with a negative psychological situation, however, tended towards strong beliefs in powerful others as reinforcement for health. When students were characterized by situation specific factors that discouraged health related behaviour, they perceived the powerful others in their lives as having the most control over their health.

Relevance of Psychological Situation to Psychiatric-Mental Health Nursing

Although little can be generalized from the study's results, the psychological situation was found helpful in determining the direction of lifestyle behaviours that was consistent with the expectations of the study. Identification of the adolescent's psychological situation was useful in helping to understand and appreciate the

outcome of the student's health behaviour. In fact, understanding an individual's psychological situation helps to define a major approach to the practice of psychiatric-mental health nursing. This approach to client care, called phenomenology, focuses almost totally on the private world of the individual and is concerned with the perceptions and perceptual field of the human being (Watson, 1977, p. 168). Nurses who ascribe to the phenomenological approach strive to experience the feeling world of the client and to communicate this understanding in order for the client to increase self-awareness (Beck, Rawlins & Williams, 1984, p. 63). At the same time, achievement of empathetic understanding allows the nurse to base the pace and direction of the therapeutic relationship in a manner that is most beneficial to the client. The psychological situation of the individual, then, is a major force in determining the treatment approach.

Health Value

While the majority of adolescents ranked health as one of the top three preferred end states of existence, nearly one-quarter of the students had little regard for health as a terminal value. The trend toward high health valuing was consistent with the literature (Mulhenkamp & Nelson, 1981; Rosenblum et al., 1981) although the adolescents' ranking was not as high as was found in adult samples. Again this was

expected as the value placed on health tends to increase with progressing age, that is, older people value health more highly than younger individuals (K. Wallston, personal communication, July, 1984). Females were found to place significantly more value on health than males but this finding was not replicated in other studies (Bollin & Hart, 1982; Brown et al., 1983). Health value was also associated with religion with the result that Catholic students and those who claimed no religious affiliation placed less value on health than Protestant students. Although no explanation can be offered for this finding, the fact that the site of data collection was a parochial school of a Protestant nature might have some bearing on the result. Interestingly, adolescents from upper class circumstances placed the least value on health while middle class students had the highest ranking for health. Birth order was the final demographic characteristic related to health value. Adolescents who were oldest children valued health less highly than youngest, middle or only children.

Health Value and Lifestyle

Health value was not related to the quality of lifestyle reported by adolescents. This finding was not in keeping with the theoretical framework of the study as the value placed on health was theorized to influence health promotion.

Other studies using the locus of control framework, however, have reported results consistent with the finding of this investigation. Bollin and Hart (1982), Brown et al (1983), Muhlenkamp and Nelson (1981), and Rosenblum (1981) all reported the lack of any relationship between health value and the health behaviour under study. It was speculated that the limited range of health value scores (in this sample nearly 60% of the students assigned a value of either one, two or three to health) produced a phenomenon called the ceiling effect that was responsible for the lack of any significant relationships (Brown et al., 1983). Two dimensions of the LP, though, did reach significance with health value. Physical fitness and good nutritional practices were associated with high value placed on health. Students who ranked health highly tended to be more active and engaged in better eating habits than low health valuers. In part, then, health value did correspond with the expected direction of the study but overall was not a supporting variable.

Health Value and Health Locus of Control

Students who valued health highly had slightly stronger beliefs in internal locus of control, although the association was not a strong one. Several investigations (Brown et al., 1983; Muhlenkamp & Nelson, 1981) have reported

no association between health value and health locus of control. This discrepancy might be accounted for in this study by the uniqueness of the adolescent lifestage or, more probably, considering the weakness of the relationship, by the biassed sample. In fact, when health value was studied in relation to the eight locus of control types, no association was identified. Health value was not related to either axis of the external locus of control orientation - a finding that was supported in the literature.

Relevance of Health Value to Psychiatric-Mental Health Nursing

Although health value was found to have minimal impact on the health behaviours of the adolescents in this study, the significance of values on behaviour is extensively documented in the literature (McNally, 1980a; Rath et al., 1966; Rokeach, 1979, p. 31; Uustal, 1980). Values and value systems have been shown to determine beliefs and attitudes as well as conduct and consequently have a distinctive place in the assessment phase of the nursing process (McNally, 1980b). Accurate knowledge of a client's value system will aid in the understanding of his/her behaviour and will serve as a guide for the implementation of appropriate nursing measures. Additionally, self-assessment of the mental health nurse's personal value system is heralded as vital to the nursing

process (Uustal, 1980). Optimal client care is stymied until the nurse has a clear understanding of his/her values related to such concepts as quality of life, the meaning of illness as a growth experience, health value and death and dying (Uustal, 1980).

Adolescents' Perception of Their Health Problems

Unquestionably, the students in this sample were cognizant of the significance that lifestyle behaviours have for health. They perceived the major health problems of young people as, in order of importance, substance use, nutrition, exercise and personal health. Improper drug use was cited by the largest number of teenagers as being problematic for youth. Alcohol was the next most commonly identified problem with tobacco not far behind. These findings concurred with other studies (Brunswick, 1969; Parcel, Nader & Meyers, 1977; Sternlieb & Munan, 1972) that reported adolescents identifying substance use as the number one health problem for youth. In addition, these same studies cited eating habits, physical exercise and various forms of personal health such as nervousness, venereal disease and lack of sleep as being problems for adolescents as identified by adolescents.

The health problems highlighted by the students in this study were congruent with the lifestyle problems identified

within the sample. The magnitude of substance use was clearly evident as was the lack of physical activity. Personal health and nutrition proved to be particularly troublesome for females. It would seem from these results that adolescents are sensitive to their own health needs.

Summary of the Relevance of the Study Variables to Mental Health Nursing

The assessment phase of the nursing process is a complex one that involves sound nursing judgments and accurate decision making. Many factors must be assessed and analyzed before appropriate nursing actions can be initiated. Identifying an individual's locus of control and clarifying his/her value system are two important steps for establishing the conceptual framework for client care (Shillinger, 1983). By incorporating locus of control concepts into the care of the individual the nurse can determine the most effective nursing measures needed to facilitate client well being. In addition to influencing the nursing approach, recognition of an individual's locus of control orientation will identify those people who require assistance in developing a more internal orientation to their physical, emotional and spiritual health (Arakelian, 1980).

Although there are few guidelines available to nurses to help them apply these concepts to the care of people, inquiry

into usual self-care and lifestyle practices yields a beginning data base from which to infer locus orientation (Shillinger, 1983). For the mental health nurse, then, exploration of a client's lifestyle has multiple purpose. Not only does it aid in the identification of health locus orientation but it reveals the "state of the art" of many aspects of behaviour that contribute to an individual's mental health. The number and effectiveness of coping strategies, the degree of physical activity, the kinds and amount of recreation, the extent of involvement with substance use are just a few of the significant mental health data that can be gleaned from a lifestyle assessment. Nursing knowledge of this type of data unquestionably influences nurse-client decisions.

Conclusion

The practice of psychiatric-mental health nursing is an intricate, dynamic field of care that requires a holistic perspective for maximum effectiveness. With the expansion of the nurse's role and belief in the interrelationship of the mind, body and spirit, new territory is being claimed for nursing ministrations. One area found to impact mental well being is that of lifestyle. To provide quality in giving emotional care, the mental health nurse has the responsibility to assess and judge all relevant factors that

influence health. Lifestyle, with the concomitant predictors of health locus of control, health value and psychological situation, is one such relevant factor.

CHAPTER V

SUMMARY, IMPLICATIONS AND RECOMMENDATIONS

Summary of Study

Lifestyle is the current major precursor of illness, both physical and emotional (Randall, 1981). The importance of adopting lifestyle practices that foster well being cannot be overstated. Adolescence, the critical lifestage for the establishment and maintenance of a range of health behaviours, is particularly vulnerable because decisions made at this time have long term relevance for health (Perry & Murray, 1982). Facilitation of healthy lifestyle behaviours among adolescents is therefore a vital, preventive function of the mental health nurse.

Factors believed instrumental in determining the quality of lifestyle espoused were chosen for investigation to highlight important assessment areas for the holistic mental health nurse. Few investigations have focused on these factors in relation to adolescents. Consequently, the purpose of this study was to examine the nature and quality of adolescent lifestyle behaviours, the adolescent's health locus of control, adolescent health valuing, the psychological situation of adolescents and the relationships between them as well as with demographic characteristics. Information from such a study would have implications for health care practice, by providing a broader understanding of

the behaviours that adolescents engage in and the factors that are associated with the behaviours. Questions that would lead to further research would also be generated by such a study.

A descriptive correlational design was selected for the investigation. Non-probability convenience sampling was used to procure subjects in a metropolitan high school during a routine school day. The study population consisted of adolescents attending high school who were between the ages of 15 and 19 inclusive. The sample consisted of 336 adolescents - 181 males and 155 females. The students completed a questionnaire - The Health Information Survey - comprised of four sequenced parts: (a) Rokeach's Value Survey, (b) the Multidimensional Health Locus of Control Scale, (c) the Lifestyle Profile and (d) General Demographics. This questionnaire provided data respectively on the value placed on health, the adolescent's health locus of control orientation, the lifestyle behaviours demonstrated, demographic characteristics, the adolescent's psychological situation and the adolescent's perception of the major health problems of today's youth.

Findings of the study indicated that lifestyle was, indeed, a serious health threat for the majority of teenagers. Although males had a higher quality of lifestyle than females, both sexes engaged in risky health behaviours.

The results indicated that aolescents who were older, who had a less than average academic standing and who were employed at a part time job demonstrated a lower quality or more hazardous lifestyle. Socioeconomic class was also related to overall lifestyle; students from upper class circumstances engaged in more health promoting behaviours.

The quantitative measure of health locus of control revealed that adolescents scored higher on items that related to an internal locus of control than those that related to either a powerful others or chance locus of control. There was a significant relationship between the strength of internal beliefs and quality of lifestyle exhibited; lifestyle behaviours improved as beliefs in internal locus of control increased. Younger students and those with A grades tended to have stronger internal beliefs. Lifestyle was also associated with beliefs in chance as locus of control. Students with strong beliefs in chance engaged in more hazardous behaviours overall and were particularly vulnerable to substance abuse. Males, students with poor academic standing and those with no part time job were significantly more externally chance oriented.

The measure of psychological situation indicated that the majority of adolescents had alternative sources of support for health which facilitated a positive influence on their health. Students with a positive psychological situation

demonstrated a higher quality of lifestyle overall and were more physically active and reported greater satisfaction with their personal health. In addition, strong beliefs in internal locus of control were associated with a positive psychological situation.

The placement of high value on health was another characteristic of the adolescents in this study. The majority of students ranked health as one of the top three preferred end states of existence. Females and students with frequent emotional problems placed the highest value on health which was surprising considering the poor quality of their lifestyle behaviours. Health value, however, was not found to have an association with lifestyle overall which was a deviation from the study's theoretical basis. The value placed on health was correlated with an internal health locus of control orientation.

In conclusion, then, this investigation was designed to explore the nature of adolescent lifestyle using locus of control concepts as its theoretical framework. Three hundred and thirty-six male and female adolescents were surveyed to obtain information concerning health behaviour, health as a value, health locus of control orientation and psychological situation. Analysis of the data provided support for most of the theoretical framework. Adolescents with strong beliefs in internal control and a positive psychological situation engaged in lifestyle behaviour that was facilitative of

healthy living. Adolescents with strong beliefs in chance or fate as reinforcement for health demonstrated the most risky lifestyle habits. Health value and a powerful others health locus of control orientation were not related to the other study variables in the expected manner.

Implications

The findings of the investigation have implications for nursing practice, theory and research. Several study limitations, however, prohibit generalization of the results. Nonrandom sampling was used to procure subjects and only students from one high school were included. The sample was biased in that only adolescents who had obtained written parental permission were given the opportunity to participate. As well, two of the data collection instruments were underdeveloped in terms of reliability and validity. The uneven distribution of males and females was also not representative of the adolescent population. In spite of these drawbacks, however, the findings have implications for health care.

Nursing Practice

Mental health nurses, working with adolescents, need to be more aware of the nature of the client's lifestyle behaviours. With the mounting evidence of the current problem and potential threat that lifestyle practices pose for the adolescent, lifestyle becomes a critical area of

assessment and intervention by the mental health professional. Many facets of lifestyle have specific and direct implication for the nurse clearly seen by the amount of substance use, the number experiencing frequent emotional distress and the other demonstrated self-destructive behaviours reported by the adolescents in this study. As well, evaluation of an individual's lifestyle using a more thorough assessment tool could potentially identify the adequacy of coping skills, the quality of interpersonal relationships and the person's ability to facilitate wellness. The incorporation of a comprehensive lifestyle assessment into the health history would provide a rich cache of data for the mental health nurse.

Other relevant implications that this study has for nursing include:

1. Mental health nurses need to be more effective in the utilization of methods to induce lifestyle change. The reported widespread phenomenon of the consequences of poor quality lifestyle behaviours (Lalonde, 1974) indicates that nursing is not having the influence that the profession is capable of.

2. Increasing internality is said to be an important goal in client care (Arakelian, 1980). Potentially, an internal locus of control is thought to influence health in three ways: (a) by mediating the effects of aversive stimuli through enhanced coping behaviour, (b) by predisposing the

individual to increased social activity which may lead to the formation and maintenance of adequate social bonds and (c) by increasing a sense of responsibility for one's own health (Thomas & Hopper, 1983). Nurses must, therefore, be knowledgeable of and skillful in the techniques that have been proben to increase beliefs in internal locus of control.

3. Simultaneously, attention should be given to measurement for identification of health locus of control orientations is proving to have relevance for the kind of nursing approach used with particular individuals. Internally oriented persons, for example, may benefit from a self-care approach while externally oriented persons do better with a more direct approach (Shillinger, 1983).

4. Female adolescents, students with an external chance health locus of control, and those experiencing frequent emotional distress are highlighted as being particularly susceptible to inadequate lifestyles. These teenagers require special assistance from the mental health nursing profession.

Theory and Research

The theoretical framework which guided the investigation was primarily supported by the results of the study. Relationships in the expected direction were revealed among and between health value, health locus of control, psychological situation and adolescent lifestyle behaviours. Health value and powerful others health locus of control,

however, proved to be two variables that had only minimal association with the other variables under study. In the case of health value the adapted version of Rokeach's Value Survey may not be discriminative enough. Rokeach himself believed that health as a value was held strongly by all people and therefore was not included in the original survey (K. Wallston, personal communication, July, 1984). Or, it may indicate a weakness of the theoretical framework in that a more specific construct is needed to accurately represent the reinforcement value for health-related behaviour. As well, belief in powerful others as controlling health was insignificant with most of the variables and had little influence on the study. It is possible that, for the developmental stage of adolescence, having respected adults actively involved in health care fosters the adoption of healthy lifestyle practices by youth which would then have the same influence as beliefs in internal control.

The measure of psychological situation and the Lifestyle Profile need more refinement. The instrument to measure psychological situation was developed by the researcher and reliability and validity were not established. Although the LP was developed by experts in the federal government of Canada and is purported to have content validity, neither reliability nor validity have been formally investigated (Health and Welfare Canada, personal communication, July,

1984). The richness of the data was restricted by the large percentage of forced choice questions. As well, more attention should focus on the family and its influence on the health decisions of adolescents.

In addition, there are two important considerations when using the health locus of control framework. First, it is not the only explanation of health behaviour (Wallston & Wallston, 1978). Many other contributing factors are associated with health practices for, as previously described in the section on the theoretical framework (p. 27), health locus of control is but one component of the Health Belief Model, a larger theory of preventive health behaviour. Second, the importance an individual attaches to lifestyle is a measure that would have relevance for the framework (Pill & Scott, 1981). It is possible that the value an individual places on lifestyle coupled with the value placed on health would more accurately represent an operationalization of the reinforcement value concept of the theory.

Modification to the present investigation. Useful changes to the study would include:

1. A random sample of adolescents so that all adolescents, both in school and not, would have an equal chance to participate in the research.

2. Operationalization of the concepts via more refined and standardized tools to ensure reliable and valid findings.

3. A larger sample size to include adolescents from ages 12 through 20.

Further research. Areas identified for future research as a result of this investigation include:

1. A longitudinal study in which the nature of lifestyle and health locus of control orientation are monitored over time and through different life situations.

2. An experimental approach in which different methods of promoting internality are examined which, in essence, would serve as a more stringent test of the validity of health locus of control theory (Shillinger, 1983).

3. Since nearly 10% of the sample reported frequent emotional distress, a study to focus specifically on adolescent mental health and locus of control is warranted. A comparison study of adolescents with diagnosed psychiatric disorders and those without could yield some important clues about prevention and treatment.

4. The relationships between family variables and locus of control needs to be explored. Are different family characteristics associated with specific locus of control orientations?

5. Increased understanding of the variable, psychological situation, is necessary, as well as the development of a sound instrument to measure it.

6. An exploratory study to focus solely on those students with strong beliefs in chance would increase understanding of that high risk group.

7. A study of lifestyle and health locus of control in which qualitative research methods are used.

8. A study to investigate why part time employment is associated with poor quality lifestyle among adolescents.

9. The dimension of powerful others health locus of control needs further exploration in relation to adolescents. It may be that it is, indeed, a favorable orientation for the developing teenager.

Conclusion

A descriptive correlational investigation was designed to examine the relationships among and between health value, health locus of control, psychological situation and adolescent lifestyle behaviours. The relevance of the study variables was explored in relation to the role and function of the psychiatric mental health nurse. Findings revealed that the majority of students reported a risky lifestyle, high health value, a positive psychological situation and firm beliefs in internal health locus of control. Analysis of the data determined that males, students without part time employment and those that did well in school had significantly healthier lifestyles. A positive psychological situation and strong beliefs in internal control were also

associated with health-promoting lifestyles. Students with external chance health locus of control orientations and frequent emotional distress experienced the most hazardous lifestyle behaviours. Students described lifestyle-related problems as the major health problems of today's youth.

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APPENDIX A

Adaptation of Rokeach's Value Survey

Below you will find a list of ten values listed in alphabetical order. I would like for you to arrange them in order of their importance to YOU, as guiding principles in your life. Study the list carefully and pick out the one value which is the most important to you. Write the number "1" in the space to the left of the important value. Then, pick out the value which is second most important to you. Write the number "2" in the space to the left. Then continue in the same manner for the remaining values (3 through 10) until you have included all ranks from 1 to 10. Each value should have a different rank. Only one value is ranked "1", only one value is ranked "2", only one value is ranked "3", and so on. I realize that some people find it difficult to distinguish the importance of some of these values. Do the best you can, but please rank all 10 of them. The end result should truly show how YOU really feel.

_____ A COMFORTABLE LIFE (a prosperous life)

_____ AN EXCITING LIFE (a stimulating, active life)

_____ FREEDOM (independence, free choice)

_____ HAPPINESS (contentedness)

_____ HEALTH (physical and mental well-being)

_____ INNER HARMONY (freedom from inner conflict)

_____ PLEASURE (an enjoyable, leisurely life)

_____ SELF-RESPECT (self-esteem)

Appendix A (cont'd)

_____ A SENSE OF ACCOMPLISHMENT (lasting contribution)

_____ SOCIAL RECOGNITION (respect, admiration)

99 students ranked health first

52 - second

45 - third

32 - fourth

27 - fifth

38 - sixth

18 - seventh

9 - eighth

9 - ninth

7 - tenth

APPENDIX B

Multidimensional Health Locus of Control Scale

This is a questionnaire designed to determine the way in which different people view certain important health-related issues. Each item is a belief statement with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item I would like you to circle the number that represents the extent to which you disagree or agree with the statement. The more strongly you agree with a statement, then the higher will be the number you circle. The more strongly you disagree with a statement, then the lower will be the number you circle. Please make sure that you answer every item and that you circle only one number per item. This is a measure of your personal beliefs; obviously, there are no right or wrong answers.

Please answer these items carefully, but do not spend too much time on any one item. As much as you can, try to respond to each iten independently. When making your choice, do not be influenced by your previous choices. It is important that you respond according to your actual beliefs and not according to how you feel you should believe or how you think I want you to believe.

Appendix B (cont'd)

1. If I get sick, it is my own behaviour which determines how soon I get well again.	1(14) 2(26) 3(39) 4(93) 5(117)6(47)
2. No matter what I do, if I am going to get sick, I will get sick.	1(95) 2(88) 3(58) 4(38) 5(35) 6(22)
3. Having regular contact with my physician is the best way for me to avoid illness.	1(47) 2(56) 3(53) 4(68) 5(64) 6(48)
4. Most things that affect my health happen to me by accident.	1(81) 2(63) 3(76) 4(43) 5(54) 6(19)
5. Whenever I don't feel well, I should consult a medically trained professional.	1(50) 2(62) 3(63) 4(65) 5(60) 6(35)
6. I am in control of my health.	1(21) 2(21) 3(25) 4(73) 5(107)6(89
7. My family has a lot to do with my becoming sick or staying healthy.	1(75) 2(55) 3(52) 4(85) 5(52) 6(16)
8. When I get sick, I am to blame.	1(62) 2(56) 3(68) 4(76) 5(46) 6(28)

Apprndix B (cont'd)

9. Luck plays a big part in determining how soon I will recover from an illness.	1(178) 2(81) 3(35) 4(26) 5(8) 6(8)
10. Health professionals control my health.	1(181) 2(78) 3(34) 4(25) 5(12) 6(6)
11. My good health is largely a matter of good fortune.	1(115) 2(80) 3(52) 4(44) 5(26) 6(19)
12. The main thing which affects my health is what I myself do.	1(7) 2(10) 3(23) 4(32) 5(126) 6(137)
13. If I take care of myself, I can avoid illness.	1(3) 2(8) 3(19) 4(52) 5(144) 6(110)
14. When I recover from an illness, it's usually because other people (for example, doctors, nurses, family, friends) have been taking good care of me.	1(27) 2(40) 3(47) 4(91) 5(88) 6(43)
15. No matter what I do, I'm likely to get sick.	1(96) 2(72) 3(54) 4(55) 5(30) 6(28)
16. If it's meant to be, I will stay healthy.	1(71) 2(54) 3(83) 4(65) 5(34) 6(29)

Appendix B (cont'd)

17. If I take the right actions, I can stay healthy.	1(10) 2(19) 3(35) 4(82) 5(119) 6(71)
18. Regarding my health, I can only do what my doctor tells me to do.	1(110) 2(66) 3(60) 4(32) 5(53) 6(15)

APPENDIX C

Lifestyle Profile

INDICATE BY CHECKING ONLY THE ANSWERS THAT APPLY TO YOU. The plus (+) and minus (-) signs next to some numbers indicate more than (+) and less than (-). For example, 10+ means more than 10 and -10 means less than 10.

EXERCISE

1. Amount of physical effort expended during the workday: mostly -

   a. Heavy physical, walking, housework n=183
   b. Desk work n=153

2. Participation in physical activities (skiing, golf, swimming, etc.) (lawn mowing, gardening, etc.)?

   a. Daily n=140
   b. Weekly n=140
   c. Seldom n=56

3. Participation in a vigorous exercise program?

   a. 3 times weekly n=118
   b. Weekly n=90
   c. Seldom n=128

4. Average miles walked or jogged per day?

   a. 1+ n=254
   b. -1 n=64
   c. None n=18

5. Flights of stairs climbed per day?

   a. 10+ n=298
   b. -10 n=38

Appendix C (cont'd)

NUTRITION

6. Are you overweight?

a. No	n=230
b. 5 to 19 lbs.	n=88
c. 20+ lbs.	n=18

7. Do you eat a wide variety of foods - something from each of the following five food groups: (1) meat, fish, poultry, dried legumes, eggs or nuts; (2) milk or milk products; (3) breads or cereals; (4) fruits; (5) vegetables?

a. Each day	n=230
b. 3 times weekly	n=106

ALCOHOL

8. Average number of bottles (12 oz.) of beer per week?

a. 0 to 7	n=270
b. 8 to 15	n=54
c. 16+	n=12

9. Average number of hard liquor (1 1/2 oz.) drinks per week?

a. 0 to 7	n=322
b. 8 to 15	n=6
c. 16+	n=8

10. Average number of glasses (5 oz.) of wine or cider per week?

a. 0 to 7	n=326
b. 8 to 15	n=6
c. 16+	n=4

11. Total number of drinks per week, including beer, liquor and wine?

a. 0 to 7	n=241
b. 8 to 15	n=65
c. 16+	n=40

Appendix C (cont'd)

DRUGS

12. Do you take drugs illegally?

a. No	n=230
c. Yes	n=106

13. Do you consume alcoholic beverages together with certain drugs (tranquilizers, barbiturates, antihistamines or illegal drugs)?

a. No	n=273
c. Yes	n=63

14. Do you use painkillers improperly or excessively?

a. No	n=314
c. Yes	n=22

TOBACCO

15. Cigarettes smoked per day?

a. None	n=215
b. -10	n=60
c. 10+	n=61

16. Cigars smoked per day?

a. None	n=319
b. -5	n=7
c. 5+	n=10

17. Pipe tobacco pouches per week?

a. None	n=332
b. -2	n=1
c. 2+	n=3

PERSONAL HEALTH

18. Do you experience periods of depression?

a. Seldom	n=171
b. Occasionally	n=141
c. Frequently	n=24

Appendix C (cont'd)

19. Does anxiety interfere with your daily activities?

a. No	n=183
b. Occasionally	n=143
c. Frequently	n=10

20. Do you get enough satisfying sleep?

a. Yes	n=202
b. No	n=134

21. Are you aware of the causes and dangers of V.D.?

a. Yes	n=293
b. No	n=43

22. Breast Self-Examination? (if not applicable, do not score)

a. Monthly	n=7
b. Occasionally	n=36
c. Never	n=112

ROAD AND WATER SAFETY

23. Mileage per year as driver or passenger?

a. -10,000	n=170
b. 10,000+	n=166

24. Do you often exceed the speed limit?

a. No	n=156
b. By 10 mph	n=108
c. By 20 mph	n=72

25. Do you wear a seatbelt?

a. Always	n=270
b. Occasionally	n=99
c. Never	n=17

26. Do you drive a motorcycle, moped or snowmobile?

a. No	n=207
b. Yes	n=129

Appendix C (cont'd)

27. If yes to the above, do you always wear a regulation safety helmet?

a. Yes	n=300
b. No	n=36

28. Do you ever drive under the influence of alcohol?

a. Never	n=286
c. Occasionally	n=50

29. Do you ever drive when your ability may be affected by drugs?

a. Never	n=300
c. Occasionally	n=36

30. Are you aware of wate safety rules?

a. Yes	n=316
b. No	n=20

31. If you participate in water sports or boating, do you wear a life jacket? (If not applicable, do not score)

a. Yes	n=281
b. No	n=55

GENERAL

32. Average time watching T.V. per day (in hours)?

a. -1	n=49
b. 1 to 4	n=198
c. 4+	n=89

33. Are you familiar with First Aid procedures?

a. Yes	n=283
b. No	n=53

34. Do you ever smoke in bed?

a. No	n=286
b. Occasionally	n=36
c. Yes	n=14

Appendix C (cont'd)

35. Do you always make use of clothing and equipment provided for your safety at work? (If not applicable, do not score)

a. Yes	n=287
b. Occasionally	n=31
c. No	n=18

APPENDIX D

Psychological Situation

10. How often have you been seen by a physician or nurse in the last 12 months?

a. Never	n=75
b. 1 to 3 times	n=201
c. 4 to 6 times	n=28
d. More than 6 times	n=32

11. In comparison to other people your age, how would you rate your overall health?

a. Below average	n=14
b. Average	n=230
c. Above average	n=90

12. Do you feel that you are provided with enough health information either at home or at school to make responsible decisions about your health behaviour?

a. Yes	n=260
b. No	n=76

13. How would you rate your parents' interest and involvement in keeping themselves and other members of the family well?

a. Show very little interest in health at any time	n=10
b. Mainly become concerned about health when a family member is ill	n=186
c. Demonstrate ongoing involvement in maintaining the health of family members by good health care practice	n=140

14. Do you have any major or chronic illnesses?

a. Yes	n=26
b. No	n=310

15. How concerned are you about your health?

a. Not at all	n=22
b. Somewhat	n=165
c. Very much	n=149

APPENDIX E

Demographic Characteristics

ANSWER THE QUESTIONS THAT APPLY TO YOU.

1. Age in years:

   a. 15 n=87 b. 16 n=102 c. 17 n=97 d. 18 n=39

   e. 19 n=11

2. Sex:

   a. Female n=155 b. Male n=181

3. Present grade:

   a. Ten n=109 b. Eleven n=102 c. Twelve n=125

4. Religion:

   a. Protestant n=198 b. Catholic n=21
   c. Other n=90 d. None n=27

5. Occupation of mother: upper class n=80; middle class n=141

6. Occupation of father: lower class n=155

7. Place in family:

   a. Only child n=11
   b. Youngest n=125
   c. Middle n=104
   d. Oldest n=96

8. Average marks on last report card:

   a. Mostly A's - Excellent n=54
   b. Mostly B's - Very good n=115
   c. Mostly C's - Average n=123
   d. Mostly D's - Fair n=30
   e. Failing n=14

Appendix E (cont'd)

9. Are you employed at a job outside school?

a. Yes	n=144
b. No	n=222

16. What do you think are the major health problems of young people?

1. Drugs n=157; 2. Alcohol n=151; 3. Tobacco n=124

4. Nutrition n=74; 5. Exercise n=63;

6. Social disease n=32; 7. Mental health n=25

APPENDIX F

Explanation of the Data Collection Instruments

Rokeach's Value Survey

Part I of the Health Information Survey comprised an adaptation of Rokeach's Value Survey and was designed to determine the value or ranking an individual gives to health in relation to other terminal values defined by Rokeach (1973) as preferable end states of existence. Wallston constructed the survey in 1974 by choosing nine out of Rokeach's 18 terminal values and adding health as a tenth value (K. Wallston, personal communication, July 30, 1984). Originally the parenthetical definition following the value health was "absence of illness or injury" but to better conform with the World Health Organization's definition of health, it was changed to "physical and mental well being" (K. Wallston, personal communication, July 1984). The value survey requires the individual to rank health and nine other values, using "1" to represent the most important value and "10" to represent the least important value.

There is no reliability information available on the adapted Value Survey. Since it uses rank ordering, there can be no estimate of internal consistency and since there is no documentation of it being given on a test-retest basis, there is no known indication of its stability (K. Wallston, personal communication, July 30, 1894).

Appendix F (cont'd)

Regarding validity, there is indication that the Value Survey does measure what it purports to measure. There are several studies published (Kaplan & Cowles, 1978; Saltzer, 1978; Wallston et al., 1976) that have used the Value Survey and found that it operates as one would theoretically expect it to operate. This indicates construct validity. In addition, different subsamples tend to rank "health" differently and these differences appear logical. For example, younger, healthier samples are apt to rank "health" as less important than older subjects or people with a chronic disease (K. Wallston, personal communication, July 30, 1984). These results also suggest a form of construct validity. Evidence of concurrent validity also exists. Two different methods of measuring health value - the Value Survey and a four item Likert scale - have been administered to the same group of subjects and the two scores (ranking and rating) do correlate significantly with a Pearson's r of .3 to .4 (K. Wallston, personal communication, July 30, 1984).

Multidimensional Health Locus of Control

Part II of the Health Information Survey consisted of the Multidimensional Health Locus of Control Scale (MHLC) which was developed by Wallston, Wallston and DeVellis (1978) to assess beliefs concerning the source of reinforcement for health-related behaviours. These scales evolved from the

unidimensional Health Locus of Control Scale (HLC) developed in 1976 (Wallston et al., 1976) and are designed for use with adults who have a minimum eighth grade education and no functional learning impairments. The scales measure the reinforcement for health behaviours as primarily internal, a matter of chance or under the control of powerful others. Each of the three subscales is composed of six statements designed to elicit information about an individual's health beliefs. Subjects ranked their level of agreement with each statement on a six point Likert-type scale ranging from strongly disagree to strongly agree. The range for each subscale was 6-36. Scores were computed in each of the three subscales: Internal Health Locus of Control (IHLC) (item nos. 1, 6, 8, 12, 13, 17); Powerful Others Health Locus of Control (PHLC) (item nos. 3, 5, 7, 10, 14, 18) and Chance Health Locus of Control (CHLC) (item nos. 2, 4, 9, 11, 15, 16) with PHLC and CHLC reflecting modes of external locus of control (Wallston, et al., 1978c). Median splits were done on all three subscales and subjects were classified as one of eight types depending on their pattern of being above ("high") or below ("low") the median of the scales.

Preliminary evidence for the reliability and predictive and construct validity for the scale is accumulating. Alpha reliabilities for the MHLC ranged from .673 to .767 and because the instrument was created with an equivalent form

Appendix F (cont'd)

for studies that require repeated administration the alpha reliabilities increased from .830 to .859 when the six items in each scale were combined to 12 items (Wallston et al., 1978c). This study did not require the subjects to retake the test for comparative purposes, hence, only Form A was used. Test-retest reliability was 0.688 for IHLC, 0.745 for PHLC and 0.687 for CHLC (Hallal, 1982). The instrument has predictive validity in that there is a positive correlation between a high score on IHLC and good health status (Wallston & Wallston, 1978c). Shipley (1981) reports evidence of subscale validity and independence while factorial independence of the three separate subscales was also confirmed by Hartke and Kunce (1982).

Lifestyle Profile

The third instrument used in this study, the Lifestyle Profile (LP) was a 35 item questionnaire that examined eight dimensions of lifestyle: (a) exercise (item nos. 1-5); (b) nutrition (item nos. 6, 7); (c) alcohol (item nos. 8, 9, 10, 11); (d) drugs (item nos. 12, 13, 14); (e) tobacco (item nos. 15, 16, 17); (f) personal health (item nos. 18, 19, 20, 21, 22); (g) road and water safety (item nos. 23-31) and (h) a general miscellaneous category (item nos. 32, 33, 34, 35). This questionnaire was designed by Health and Welfare Canada as an educational tool to help Canadians identify

Appendix F (cont'd)

their positive and negative health-related behaviours and to generally assess the quality of their lifestyles. Each question required the subject to choose between two or three answers, indicating by a check mark the behaviour that was most appropriate for them.

A few minor adaptations were made to the form, primarily to assist in the tabulation of data and consequently instructions for filling out the form were slightly different. The instrument has a scoring system provided that awards low points for healthy behaviours and high points for behaviours that are detrimental to health. The range of scores for the LP is 35-155. Based on total scores individuals were classified as exhibiting lifestyle behaviours that are: (a) excellent (score = 35-45); (b) good (score = 46-55); (c) risky (score = 56-65) and (d) hazardous (score = ↑65). Individual subscale scores were also computed to determine the adequacy of behaviour in each area of lifestyle assessed. Using the classification system developed by Health and Welfare Canada, a maximum score in each dimension was determined to indicate the division between acceptable and non-acceptable behaviours. The maximum acceptable score in each dimension was: (a) seven points for exercise; (b) four points for nutrition; (c) six points for alcohol; (d) seven points for drugs; (g) thirteen

Appendix F (cont'd)

points for road and water safety, and (h) six points for the general category.

There is no information available on the reliability and validity of the LP (Health and Welfare Canada, personal communication, July 17, 1984).

Psychological Situation

The six items relating to personal health, health status and family involvement in health care were an attempt by the investigator to assess in a rudimentary fashion the psychological situation of the student. The concept of psychological situation is one of three key concepts in Rotter's (1954) locus of control theory. As used in the literature, the term psychological situation is possibly misleading in that it encompasses aspects of the environment to which an individual responds and which influences an individual's perception of locus of control expectancy and reinforcement value. There is no known instrument developed which operationalizes the concept of psychological situation as it is described in social learning theory but important aspects of it have been identified in the literature (Lewis et al., 1978). Based on this information and the investigator's interpretation of the concept, three situation specific variables believed to influence health related behaviour decisions were developed for this investigation. The first

Appendix F (cont'd)

variable, perceived health status , was addressed by three items: (a) the rating of perception of overall health in the form of: "below average", "average" and "above average", (b) concern for personal health rated as: "not at all" concerned, "somewhat" concerned and "very much" concerned and (c) the presence or absence of a major or chronic illness. The influence of the family, the second variable identified by the investigator, was assessed by two items: (a) the adequacy of health information and (b) parental involvement in promoting the family's health. Frequency of health contact, the third variable, was indicated by the number of times the student had been seen by a doctor or nurse in the last 12 months.

Students were classified as having a positive or negative psychological situation based on their scores on these items. Each variable was scored separately and then summed for a total score that determined the nature of psychological situation. Scores of 2 were awarded for each of the following responses: a) below average perception of health, b) no concern for health, c) presence of a major illness, d) inadequate availability of health information, e) absence of parental concern for the family's health and f) four or more visits to a health professional in the previous 12 months. All other responses were

awarded a score of 1. Scores ranged from six to twelve with a positive psychological situation being defined as scores of seven and below and a negative psychological situation being scores greater than seven.

APPENDIX G

Letter of Explanation to Parents

School of Nursing
Memorial University of Newfoundland
Health Sciences Center
St. John's, NFLD.

Dear Parent or Guardian:

My name is Joy Maddigan and I am presently completing my master's degree in nursing at Memorial University of Newfoundland. In partial fulfillment for the degree, I am doing a research study concerning the health-related behaviours of adolescents in the St. John's area.

I have received approval from the Avalon Consolidated School Board and the principal of the high school to conduct the survey with students. Before any student can take part in the study, however, he or she must have written parental permission. The purpose of this letter, then, is to explain briefly about the study and to obtain your written permission so that your son or daughter may participate if he or she is willing.

The survey is called The Health Information Survey and is composed of 77 questions divided into four sections. The majority of questions come from a questionnaire designed by Health and Welfare Canada which examines various components of lifestyle such as fitness, nutrition, substance use, road and water safety and personal health. A second section

Appendix G (cont'd)

examines beliefs about health while a third asks the students to prioritize a list of 10 values from most important to least important. The final section asks information of a more individual nature, such as age, sex, grade, parents' occupation, religious orientation and several more questions related to health. A copy of the questionnaire is now at the school office if you would like to have a closer look at it. I would appreciate it, however, if you would not share your impressions of the document with your child so as not to influence him or her in any way.

The questionnaire will take about 30 minutes to complete and will be administered during class time. That is the extent of participation required from those in the study. Your son's or daughter's name will not appear on the questionnaire as it will be strictly anonymous, nor will he or she be identified in any reports of the study that may be published. The adolescents may refuse to answer any question and may withdraw from the study at any time.

I hope that nearly every student in the school will take part in the study so that the information collected will be very meaningful. I will be available after Christmas to talk with the students and parents about the results of the study. If you would like your child to take part in this research study, please clip the form from the bottom of this letter,

Appendix G (cont'd)

sign it and have your son or daughter return it to his/her homeroom teacher.

Thank you very much for your time and consideration.

Sincerely,

Joy Maddigan, BN RN
Graduate Student

APPENDIX H

Parental Consent Form

I, _____, give my consent for my son/daughter, _____, to take part in a nursing research study conducted by Joy Maddigan, a graduate student at Memorial University of Newfoundland. I understand the purpose of the study and the nature of my son's/daughter's involvement. I understand that he/she will not benefit directly from participation in the study.

Date_____ Signed _____

APPENDIX I

Verbal Introduction to Students over the School's Intercom System

Hi,

I'm Joy Maddigan, a graduate student in nursing and the person behind the questionnaire you have just received. I am working toward a master's degree and am doing a research study concerning the health-related behaviours of adolescents.

I hope that each of you who have received permission from home will take part in the study. As a person who cares about health, I think that it is important to try and understand the health decisions that young people make. I hope that you feel somewhat the same and will show your support by reading and filling out the questionnaire.

Please understand that the questionnaire is strictly confidential and anonymous. No names will appear on the questionnaire nor will any participants be identified in any reports of the study that may be published. The questionnaire will take at most 40 minutes to complete and is the total extent of participation required. For those who decide, for whatever reason, not to take part in the study, that is perfectly okay. No harm of any sort will befall you! Participation is purely voluntary and totally an individual

Appendix I (cont'd)

decision. I'll be happy to answer any questions you might have.

Thank you for your time and please consider filling out the questionnaire.

APPENDIX J

Student Evaluation of Questionnaire in the Pretest

Since I am at the beginning stage of data collection, some changes may be necessary in the form of the questionnaire. Would you be willing to answer the following questions about the questionnaire to assist in identifying the necessary changes?

(Investigator will record the responses).

1. Were there any questions that were confusing for you? If so, which questions were they?
2. Were there any questions which you found objectionable? If so, which questions were they?
3. Do you have any other comments about the survey or any of the questions in the survey?

Thank you very much for participating in the study and for your comments.

APPENDIX K

Descriptive Characteristics of Nonrespondents and Information Pertaining to the Distribution of Missing Data

Comparison of Selected Descriptive Characteristics of the Study Sample and the Nonrespondents

Variable	Sample Analyzed (N=336)	Nonrespondents (N=128)	Nonrespondents With No Data
Age			
Adolescence			5
- Middle	189	72	
- Late	147	51	
Sex			
Female	155	78	
Male	181	50	
Grade			3
Ten	109	40	
Eleven	102	48	
Twelve	125	37	
Religion			5
Protestant	198	74	
Catholic	21	11	
Other	90	35	
None	27	3	
Socioeconomic Class			40
Upper	80	31	
Middle	141	31	
Lower	115	25	
Birth Order			4
Only Child	11	9	
Youngest Child	125	43	
Middle Child	104	33	
Oldest Child	96	39	

Appendix K (cont'd)

Variable	Sample Analyzed (N=336)	Nonrespondents (N=128)	Nonrespondents With No Data
Average Marks			9
Mostly A's	54	25	
Mostly B's	115	42	
Mostly C's	123	31	
Mostly D's	30	18	
Failing	14	3	
Part-Time Employment			9
Yes	114	34	
No	222	85	
Psychological Situation			50
Positive	276	78	
Negative	60	0	
Health Value			0
High	196	78	
Low	140	50	

Distribution of Missing Data on Health Information Survey

Study Instruments	# Subjects from the Original 464 Who Provided Missing Data
Adapted Version of Rokeach's Value Survey	0
Multidimensional Health Locus of Control Scale	54
Lifestyle Profile	127
Exercise	13
Nutrition	10
Substance Use	40
Personal Health	29
Road and Water	84
General	6
Psychological Situation	50

APPENDIX L

Summary of Statistically Significant ($p < .05$) Relationships and Correlations Among the Study Variables

Variables	Statistic	Value	df	p
Health contact by				
Sex	x^2, Cramer's V	19.5, .24	3	.0002
Average marks		-.03		.02
Health status by				
Sex	x^2, Cramer's V	19.0, .24	2	.0001
Average marks		-.12		.001
Parental involvement by				
Birth order	x^2, Cramer's V	12.6, .14	6	.05
Average marks		-.11		.0007
Part time job	x^2, Cramer's V	7.4, .15	2	.02
Major illness by				
Sex	x^2, Ø	4.2, .11	1	.04
Average marks	x^2, Cramer's V	10.1, .17	4	.04
Concern for health by				
Sex	x^2, Cramer's V	7.5, .15	2	.02
Average marks		-.07		
Psychological situation by				
Health contact	x^2, Cramer's V	24.3, .27	3	.001
Health status	x^2, Cramer's V	17.2, .23	2	.0002
Health information	x^2, Ø	44.7, .37	1	.0001
Parental involvement	x^2, Cramer's V	31.1, .29	2	.002
Major illness	x^2, Ø	4.4, -.11	1	.04
Concern for health	x^2, Cramer's V	89.5, .52	2	.0001
Lifestyle Profile by				
Health status	τ	-.17		.0002
Parental involvement	τ	-.23		.04
Concern for health	τ	-.24		.0001
Age		.16		.01
Sex	x^2, Cramer's V	9.6, .18	3	.02
SEC	x^2, Cramer's V	18.5, .18	6	
Average marks		.34		.0001
Part time job	x^2, Cramer's V	18.1, .23	3	.0004
Psychological situation	x^2, Cramer's V	36.5, .33	1	.0001

Appendix L (cont'd)

Variables	Statistic	Value	df	p
Exercise by				
Health status	x^2, Cramer's V	32.5, .31	2	.0001
Sex	x^2, Ø	10.5,-.18	1	.0012
SEC	x^2, Cramer's V	7.2, .15	2	.03
Part time job	x^2, Ø	9.3, .17	1	.002
Psychological	x^2, Ø	6.8, .14	1	.009
Nutrition by				
Health status	x^2, Cramer's V	25.3, .27	2	.0001
Major illness	x^2, Ø	6.9,-.14	1	.008
Sex	x^2, Ø	7.8,-.15	1	.005
SEC	x^2, Cramer's V	6.6, .17	2	.04
Average marks	x^2, Cramer's V	22.3, .26	4	.0002
Psychological situation	x^2, Ø	4.5, .12	1	.03
Substance use by				
Age	x^2, Cramer's V	32.6, .27	4	.001
Average marks	x^2, Cramer's V	36.2, .33	4	.0001
Part time job	x^2, Cramer's V	28.2, .29	1	.0001
Personal health by				
Health contact	x^2, Cramer's V	13.1, .20	1	.004
Health status	x^2, Cramer's V	16.5, .22	2	.003
Major illness	x^2, Ø	3.9,-.11	1	.05
Sex	x^2, Ø	121.4,-.30	1	.001
Part time job	x^2, Ø	6.4, .14	1	.01
Psychological situation	x^2, Ø	9.9, .17	1	.002
Road and Water by				
Concern for health	x^2, Cramer's V	7.4, .15	2	.02
Sex	x^2, Ø	15.1, .21	1	.001
Average marks	x , Cramer's V	23.3, .26	4	.0001
Part time employment	x^2, Ø	17.1, .23	2	.001
General factors by				
Health status	x^2, Cramer's V	7.8, .15	2	.02
Parental involvement	x^2, Cramer's V	8.0, .24	2	.02
Sex	x^2, Ø	3.8, .11	1	.05
Birth order	x , Cramer's V	8.0, .15	3	.05
Average marks	x , Cramer's V	12.2, .19	4	.02
Psychological situation	x^2, Ø	4.8, .12	1	.03

Appendix L (cont'd)

Variables	Statistic	Value	df	p
Health value by				
Concern for health	x^2, Cramer's V	9.9, .17	2	.007
Sex	x^2, Ø	10.5, -.18	1	.001
Religion	x^2, Cramer's V	12.3, .19	3	.007
SEC	x^2, Cramer's V	6.5, .14	2	.04
Birth order	x^2, Cramer's V	11.1, .19	3	.01
Exercise	x^2, Ø	4.5, .12	1	.03
Nutrition	x^2, Ø	5.3, .13	1	.01
IHLC	Pearson's r	.07		.04
IHLC by				
Health Status	$\tilde{\tau}$	.12		.007
Major illness	x^2, Cramer's V	114.0, .18	3	.009
Concern for health	$\tilde{\tau}$	.17		.003
Age	Pearson's r	-.13		.0001
Average marks	$\tilde{\tau}$	-.08		.004
Lifestyle profile	$\tilde{\tau}$	-.19		.0004
Road and water	x^2, Cramer's V	8.9, .16	3	.03
CHLC	Pearson's r	-.14		.02
Psychological situation	x^2, Cramer's V	8.7, .16	3	.03
CHLC by				
Sex	x^2, Cramer's V	10.9, .18	4	.03
Average marks	$\tilde{\tau}$	.18		.009
Part-time job	x^2, Cramer's V	10.2, .17	4	.04
Lifestyle profile	$\tilde{\tau}$	.13		.006
Substance use	x^2, Cramer's V	10.3, .18	4	.04
General factors	x^2, Cramer's V	13.6, .20	4	.009
PHLC	Pearson's r	.16		.004
PHLC by				
Concern for health	$\tilde{\tau}$	.19		.0003
Lifestyle profile	$\tilde{\tau}$	-.11		.02
Substance use	x^2, Cramer's V	13.5, .20	5	.02
Psychological situation	x^2, Cramer's V	11.6, .18	5	.04

APPENDIX M

Non significant Relationships With the Study Variables

Frequency of health contact and
- (a) age (x^2 = 9.7, df = 12, p = .67)
- (b) religion (x^2 = 13.3, df = 9, p = .15)
- (c) grade (x^2 = 5.0, df = 6, p = .55)
- (d) socioeconomic class (x^2 = 5.1, df = 6, p = .54)
- (e) birth order (x^2 = 5.6, df = 9, p = .78)
- (f) part time employment (x^2 = 6.3, df = 3, p = .10)

Perceived health status and
- (a) age (x^2 = 5.2, df = 8, p = .74)
- (b) grade (x^2 = 3.0, df = 4, p = .56)
- (c) religion (x^2 = 7.5, df = 6, p = .27)
- (d) socioeconomic class (x^2 = 4.6, df = 4, p = .33)
- (e) birth order (x^2 = 5.3, df = 6, p = .51)
- (f) part time employment (x^2 = 3.6, df = 2, p = .17)

Adequacy of health information and
- (a) age (x^2 = 2.5, df = 4, p = .64)
- (b) sex (x^2 = .64, df = 1, p = .42)
- (c) grade (x^2 = 2.5, df = 2, p = .28)
- (d) religion (x^2 = .06, df = 3, p = .99)
- (e) socioeconomic class (x^2 = 2.8, df = 2, p = .29)
- (f) birth order (x^2 = 3.6, df = 3, p = .31)
- (g) average marks (x^2 = 5.7, df = 4, p = .22)
- (h) part time employment (x^2 = 1.1, df = 1, p = .30)

Parental involvement in family health care and
- (a) age (x^2 = 4.4, df = 8, p = .82)
- (b) sex (x^2 = 5.5, df = 2, p = .06)
- (c) grade (x^2 = 4.2, df = 4, p = .40)
- (d) religion (x^2 = 1.7, df = 6, p = .94)
- (e) socioeconomic class (x^2 = 3.2, df = 4, p = .52)

Major illness and
- (a) age (x^2 = 2.8, df = 4, p = .60)
- (b) grade (x^2 = 1.1, df = 2, p = .58)
- (c) religion (x^2 .68, df = 3, p = .89)
- (d) socioeconomic class (x^2 = 2.0, df = 2, p = .36)
- (e) birth order (x^2 = 1.8, df = 3, p = .62)
- (f) part time employment (x^2 = .01, df = 1, p = .94)

Appendix M (cont'd)

Concern for health and
(a) age (x^2 = 10.5, df = 8, p = .23)
(b) grade (x^2 = 8.3, df = 4, p = .08)
(c) socioeconomic class (x^2 = 4.9, df = 4, p = .30)
(d) birth order (x^2 = 3.0, df = 6, p = .81)
(e) part time employment (x^2 = 3.7, df = 2, p = .16)

Psychological situation and
(a) age (x^2 = 1.2, df = 4, p = .86)
(b) sex (x^2 = .41, df = 1, p = .51)
(c) grade (x^2 = 5.1, df = 2, p = .08)
(d) religion (x^2 = .87, df = 3, p = .83)
(e) socioeconomic class (x^2 = 1.9, df = 2, p = .38)
(f) birth order (x^2 = 39, df = 3, p = .28)
(g) academic standing (x^2 = 6.4, df = 4, p = .17)
(h) part time employment (x^2 = .13, df = 1, p = .72)
(i) substance use (x^2 = 1.3, df = 1, p = .25)
(j) road and water safety (x^2 = 1.4, df = 1, p = .24)

Lifestyle Profile and
(a) frequency of health contact (x^2 = 6.4, df = 9, p = .70)
(b) adequacy of health information (x^2 = 4.3, df = 3, p = .23)
(c) major chronic illness (x^2 = 2.8, df = 3, p = .42)
(d) religion (x^2 = 14.7, df = 9, p = .10)
(e) birth order

Exercise and
(a) academic standing (x^2 = 2.6, df = 4, p = .63)
(b) frequency of health contact (x^2 = 4.4, df = 3, p = .22)
(c) parental involvement in family health (x^2 = 4.6, df = 2, p = .10)
(d) major illness (x^2 = 2.2, df = 1, p = .14)
(e) concern for health (x^2 = 4.6, df = 2, p = .10)
(f) age (x^2 = 2.7, df = 4, p = .61)
(g) religion (x^2 = 7.6, df = 3, p = .06)
(h) birth order (x^2 = 2.7, df = 3, p = .46)

Nutrition and
(a) frequency of health contact (x^2 = 5.7, df = 3, p = .13)
(b) adequacy of health information (x^2 = 1.9, df = 1, p = .17)
(c) parental involvement in family health (x^2 = 36., df = 2, p = .17)
(d) concern for health (x^2 = 2.1, df = 2, p = .35)
(e) age (x^2 = 2.1, df = 4, p = .71)
(f) religion (x^2 = 1.7, df = 3, p = .63)
(g) birth order (x^2 = 3.5, df - 3, p = .32)
(h) part time employment (x^2 = 1.5, df = 1, p = .23)

Appendix M (cont'd)

Substance use and
(a) frequency of health contact (x^2 = 4.5, df = 3, p = .21)
(b) perceived health status (x^2 = 1.2, df = 2, p = .55)
(c) adequacy of health information (x^2 = 1.1, df = 1, p = .29)
(d) parental involvement (x^2 = 2.5, df = 2, p = .28)
(e) major illness (x^2 = .44, df = 1, p = .51)
(f) concern for health (x^2 = 2.9, df = 2, p = .23)
(g) sex (x^2 = 1.1, df = 1, p = .29)
(h) religion (x^2 = 2.7, df = 3, p = .45)
(i) socioeconomic class (x^2 = 3.0, df = 2, p = .22)
(j) birth order (x^2 = 1.7, df = 3, p = .64)

Personal health and
(a) adequacy of health information (x^2 = .78, df = 1, p = .38)
(b) parental involvement (x^2 = 4.6, df = 2, p = .10)
(c) concern for health (x^2 = 4.3, df = 2, p = .12)
(d) age (x^2 = 4.0, df = 4, p = .40)
(e) religion (x^2 = 6.4, df = 3, p = .10)
(f) socioeconomic class (x^2 = 1.3, df = 2, p = .52)
(g) birth order (x^2 = 2.3, df = 3, p = .52)
(h) average marks on last report (x^2 = 1.9, df = 4, p = .75)

Road and water safety and
(a) frequency of health contact (x^2 = 7.1, df = 3, p = .07)
(b) perceived health status (x^2 = 2.7, df = 2, p = .26)
(c) adequacy of health information (x^2 = .05, df = 1, p = .82)
(d) parental involvement (x^2 = .48, df = 2, p = .79)
(e) major illness (x^2 = .48, df = 1, p = .49)
(f) age (x^2 = 7.6, df = 4, p = .11)
(g) religion (x^2 = 1.6, df = 3, p = .67)
(h) socioeconomic class (x^2 = 3.6, df = 2, p = .17)
(i) birth order (x^2 = .47, df = 3, p = .93)

General lifestyle factors and
(a) frequency of health contact (x^2 = 3.2, df = 3, p = .36)
(b) adequacy of health information (x^2 = .10, df = 1, p = .75)
(c) major illness (x^2 = .001, df = 1, p = .97)
(d) concern for health (x^2 = 3.5, df = 2, p = .17)
(e) age (x^2 = 7.8, df = 4, p = .10)
(f) religion (x^2 = 5.7, df = 3, p = .13)
(g) socioeconomic class (x^2 = 3.4, df = 2, p = .18)
(h) part time employment (x^2 = 1.7, df = 1, p = .19)

Appendix M (cont'd)

Health value and
(a) frequency of health contact ($x^2 = 2.8$, df = 3, p = .43)
(b) perceived health status ($x^2 = 3.2$, df = 2, p = .20)
(c) adequacy of health information ($x^2 = 1.5$, df = 1, p = .22)
(d) parental involvement ($x^2 = .31$, df = 2, p = .86)
(e) major illness ($x^2 = 2.5$, df = 1, p = .11)
(f) age ($x^2 = 7.5$, df = 4, p = .11)
(g) academic standing ($x^2 = .75$, df = 4, p = .94)
(h) part time employment ($x^2 = 6.1$, df = 1, p = .18)
(i) substance use ($x^2 = .31$, df = 1, p = .58)
(j) personal health ($x^2 = .45$, df = 1, p = .50)
(k) road and water safety ($x^2 = .0$, df = 1, p = .99)
(l) general factors ($x^2 = 2.1$, df = 1, p = .15)
(m) Lifestyle Profile ($x^2 = 1.4$, df = 2, p = .70)
(n) psychological situation ($x^2 = 3.2$, df = 1, p = .31)

IHLC and
(a) frequency of health contact ($x^2 = 6.8$, df = 9, p = .66)
(b) adequacy of health information ($x^2 = 2.0$, df = 3, p = .56)
(c) parental involvement ($x^2 = 6.4$, df = 6, p = .38)
(d) sex ($x^2 = 3.2$, df = 3, p = .36)
(e) religion ($x^2 = 9.7$, df = 9, p = .38)
(f) socioeconomic class ($x^2 = 11.6$, df = 6, p = .07)
(g) birth order ($x^2 = 16.1$, df = 9, p = .06)
(h) part time employment ($x^2 = 3.5$, df = 3, p = .33)
(i) exercise ($x^2 = 4.9$, df = 3, p = .18)
(j) nutrition ($x^2 = 3.2$, df = 3, p = .37)
(k) subtance use ($x^2 = 2.8$, df = 3, p = .42)
(l) personal health ($x^2 = 7.3$, df = 3, p = .06)
(m) general factors ($x^2 = 3.4$, df = 3, p = .33)
(n) PHLC ($r = .090$, $p > .05$)

CHLC and
(a) frequency of health contact ($x^2 = 8.9$, df = 12, p = .71)
(b) perceived health status ($x^2 = 8.3$, df = 8, p = .40)
(c) adequacy of health information ($x^2 = 5.3$, df = 4, p = .26)
(d) parental involvement ($x^2 = 7.5$, df = 8, p = .49)
(e) major illness ($x^2 = 2.5$, df = 4, p = .65)
(f) concern for health ($x^2 = 7.6$, df = 8, p = .47)
(g) age ($x^2 = 17.4$, df = 16, p = .36)
(h) religion ($x^2 = 13.8$, df = 12, p = .31)
(i) socioeconomic class ($x^2 = 8.4$, df = 8, p = .40)
(j) birth order ($x^2 = 9.4$, df = 12, p = .67)

Appendix M (cont'd)

(k) exercise (x^2 = 6.3, df = 4, p = .18)
(l) nutrition (x^2 = 4.2, df = 4, p = .38)
(m) personal health (x^2 = 7.6, df = 4, p = .11)
(n) road and water safety (x^2 = 5.9, df = 4, p = .21)
(o) psychological situation (x^2 = 5.3, df = 4, p = .26)
(p) health value (γ = -.05, p = .70)

PHLC and
(a) frequency of health contact (x^2 = 13.9, df = 15, p = .53)
(b) perceived health status (x^2 = 9.7, df = 10, p = .47)
(c) adequacy of health information (x^2 = 1.9, df = 5, p = .87)
(d) parental involvement (x^2 = 10.6, df = 10, p = .39)
(e) major illness (x^2 = 5.8, df = 5, p = .33)
(f) age (x^2 = 8.7, df = 20, p = .98)
(g) sex (x^2 = 8.2, df = 5, p = .14)
(h) religion (x^2 = 16.9, df = 15, p = .31)
(i) socioeconomic class (x^2 = 17.4, df = 10, p = .07)
(j) birth order (x^2 = 12.5, df = 15, p = .64)
(k) academic standing (x^2 = 19.1, df = 20, p = .51)
(l) part time employment (x^2 = 4.6, df = 5, p = .46)
(m) exercise (x^2 = 4.9, df = 5, p = .43)
(n) nutrition (x^2 = 2.7, df = 5, p = .75)
(o) personal health (x^2 = 6.5, df = 5, p = .26)
(p) road and water safety (x^2 = 6.0, df = 5, p = .30)
(q) general factors (x^2 = 3.0, df = 5, p = .70)
(r) health value (γ = .07, p = .32)

Health locus of control types and
(a) frequency of health contact (x^2 = 17.5, df = 21, p = .68)
(b) perceived health status (x^2 = 17.3, df = 14, p - .23)
(c) adequacy of health information (x^2 = 4.7, df = 7, p = .70)
(d) parental involvement (x^2 = 18.4, df = 14, p = .19)
(e) major illness (x^2 = 7.8, df = 7, p = .35)
(f) age (x^2 = 25.4, df = 28, p = .60)
(g) sex (x^2 = 8.8, df = 7, p = .27)
(h) socioeconomic class (x^2 = 13.8, df = 14, p = .50)
(i) birth order (x^2 = 25.9, df = 21, p = .21)
(j) part time employment (x^2 = 11.2, df = 7, p = .13)
(k) exercise (x^2 = 7.9, df = 7, p = .34)
(l) nutrition (x^2 = 9.5, df = 7, p = .22)
(m) personal health (x^2 = 10.3, df = 7, p = .17)
(n) road and water safety (x^2 = 10.3, df = 7, p = .17)
(o) general factors (x^2 = 12.2, df = 7, p = .09)
(p) locus of control type (x^2 = 11.6, df = 7, p = .12)
(q) health value (x^2 = 10.5, df = 7, p = .16)